

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



Resources  
Conservation  
Service

# Washington Water Supply Outlook Report January 1, 2005





# Water Supply Outlook Reports and Federal - State – Private Cooperative Snow Surveys

---

*For more water supply and resource management information, contact:*

Local Natural Resources Conservation Service Field Office

or

Scott Pattee  
Water Supply Specialist  
Natural Resources Conservation Service  
2021 E. College Way, Suite 214  
Mt. Vernon, WA 98273-2873  
(360) 428-7684

or

Kelly Sprute  
Public Affairs Specialist  
Natural Resources Conservation Service  
1835 Black Lake Blvd. SW, Suite D  
Olympia, WA 98512-5623  
(360) 704-7789

---

## *How forecasts are made*

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

---

The U.S. Department of Agriculture (USDA) prohibits discrimination in all of its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require an alternative means for communication of program information (Braille, large print, audiotope, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326W, Whitten Building, 14<sup>th</sup> and Independence Avenue SW, Washington DC 20250-9410 or call (202) 720-5964 (voice or TDD). USDA is an Equal Opportunity provider and employer.

# Washington Water Supply Outlook

January 2005

## General Outlook

Washington is not getting off to a very good start this season. With less than one-half of the normal snowpack and only three-quarters of the normal precipitation all eyes are waiting to see what will happen next? Most of the automated SNOTEL (SNOW TELemetry) stations are showing record to near record lows for January 1 snowpack. There have only been a couple of years that have started off this slow since NRCS started using SNOTEL in the late 70's. Short of the record drought year of 1977, the years of 1981 and 1990 come to mind. 1990 started poorly but finished above average. 1981 however didn't fair so well starting and finishing way behind average. Unfortunately weather forecast agencies are predicting a continuation of the current El Nino pattern of below normal precipitation and above average temperatures for the next 90-days.

## Snowpack

The January 1 statewide SNOTEL readings were 40% of average. The Snoqualmie River Basin snow surveys reported the lowest readings at 25% of average. Readings in the Okanogan River Basin (including Canadian data) reported the highest at 72% of average. Westside averages from SNOTEL, and January 1 snow surveys, included the North Puget Sound river basins with 45% of average, the Central Puget river basins with 27%, and the Lewis-Cowlitz basins with 40% of average. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 36% and the Wenatchee area with 42%. Snowpack in the Spokane River Basin was at 53% and the Walla Walla River Basin had 38% of average. Maximum snow cover in Washington was at Lyman Lake SNOTEL in the Chelan Lake Basin, with water content of 18.4 inches. This site would normally have 29.7 inches of water content on January 1. Last year at this time Lyman Lake had 15.7 inches of snow water. The highest average in the state was also at Lyman Lake SNOTEL with 62% of average.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane .....	50 .....	53
Newman Lake .....	43 .....	45
Pend Oreille .....	64 .....	63
Okanogan .....	83 .....	72
Methow .....	51 .....	45
Conconully Lake .....	55 .....	53
Wenatchee .....	42 .....	37
Chelan .....	73 .....	53
Upper Yakima .....	28 .....	28
Lower Yakima .....	42 .....	41
Ahtanum Creek .....	40 .....	39
Walla Walla .....	38 .....	38
Lower Snake .....	51 .....	53
Cowlitz .....	40 .....	40
Lewis .....	33 .....	39
White .....	45 .....	46
Green .....	27 .....	26
Puyallup .....	45 .....	46
Cedar .....	20 .....	26
Snoqualmie .....	22 .....	25
Skykomish .....	30 .....	31
Skagit .....	48 .....	45
Baker .....	N/A .....	N/A
Nooksack .....	28 .....	51
Olympic Peninsula .....	45 .....	53



## Precipitation

During the month of December, the National Weather Service and Natural Resources Conservation Service climate stations reported varying precipitation totals throughout Washington river basins. The highest percent of average in the state was at Alpine Meadows SNOTEL which reported 123% of average for a total of 19.7 inches. The average for this site is 16 inches for December. The wettest spot in the state was reported at June Lake SNOTEL with a December accumulation of 22.1 inches. Basin averages for the water year are all below average with the Colville – Pend Oreille reporting the highest at 88% and the Yakima with the lowest at 58% of average.

RIVER BASIN	DECEMBER PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane .....	72 .....	83
Colville-Pend Oreille .....	83 .....	88
Okanogan-Methow .....	82 .....	76
Wenatchee-Chelan .....	73 .....	70
Upper Yakima .....	57 .....	58
Lower Yakima .....	63 .....	58
Walla Walla .....	52 .....	65
Lower Snake .....	78 .....	77
Cowlitz-Lewis .....	62 .....	66
White-Green-Puyallup .....	59 .....	68
Central Puget Sound .....	76 .....	82
North Puget Sound .....	88 .....	80
Olympic Peninsula .....	92 .....	73

## Reservoir

Seasonal reservoir levels in Washington vary greatly due to specific watershed management practices required in preparation for irrigation season, fisheries management, power generation and flood control. Reservoir storage in the Yakima Basin was 348,700-acre feet, 88% of average for the Upper Reaches and 129,800-acre feet, 117% of average for Rimrock and Bumping Lakes. Storage at the Okanogan reservoirs was 65% of average for January 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 110,500 acre feet, 100% of average and 46% of capacity; Chelan Lake, 431,800-acre feet, 109% of average and 7364 of capacity; and the Skagit River reservoirs at 107% of average and 88% of capacity.

BASIN	PERCENT OF CAPACITY	CURRENT STORAGE AS PERCENT OF AVERAGE
Spokane .....	46 .....	100
Colville-Pend Oreille .....	N/A .....	N/A
Okanogan-Methow .....	45 .....	65
Wenatchee-Chelan .....	64 .....	109
Upper Yakima .....	42 .....	88
Lower Yakima .....	56 .....	117
North Puget Sound .....	88 .....	107

*For more information contact your local Natural Resources Conservation Service office.*

## Streamflow

January forecasts vary from 98% of average for the Columbia River at Birchbank to 40% of average for Salmon Creek near Conconully. April-September forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 63%; Green River, 74%; and Skagit River, 78%. Some Eastern Washington streams include the Yakima River near Parker, 64%; Wenatchee River at Plain, 57%; and Spokane River near Post Falls, 66%. Volumetric forecasts are developed using current, historic and average snowpack, precipitation and streamflow data collected and coordinated by organizations cooperating with NRCS. Caution should be used when using early season forecasts for critical water resource management decisions.

Statewide December streamflows also varied. The Kettle River near Laurier had the highest reported flows with 238% of average. The Yakima River at Kiona with 56% of average was the lowest in the state. Other streamflows were the following percentage of average: the Cowlitz at Castle Rock, 68%; the Spokane at Spokane, 158%; the Columbia below Rock Island Dam, 134%; and the Cle Elum near Roslyn, 138%.

BASIN	PERCENT OF AVERAGE (50 PERCENT CHANCE OF EXCEEDENCE)
-------	---

Spokane .....	54-66
Colville-Pend Oreille .....	57-98
Okanogan-Methow .....	40-73
Wenatchee-Chelan .....	57-90
Upper Yakima .....	58-71
Lower Yakima .....	58-66
Walla Walla .....	44-66
Lower Snake .....	69-77
Cowlitz-Lewis .....	58-77
White-Green-Puyallup .....	74-75
Central Puget Sound .....	71-73
North Puget Sound .....	77-81
Olympic Peninsula .....	83-84

STREAM	PERCENT OF AVERAGE DECEMBER STREAMFLOWS
--------	--

Pend Oreille Below Box Canyon .....	129
Kettle at Laurier .....	238
Columbia at Birchbank .....	130
Spokane at Long Lake .....	140
Similkameen at Nighthawk .....	213
Okanogan at Tonasket .....	179
Methow at Pateros .....	103
Chelan at Chelan .....	157
Wenatchee at Pashastin .....	152
Yakima at Cle Elum .....	115
Yakima at Parker .....	92
Naches at Naches .....	74
Grande Ronde at Troy .....	56
Snake below Lower Granite Dam .....	81
SF Walla Walla near Milton Freewater .....	82
Columbia River at The Dalles .....	108
Lewis at Ariel .....	79
Cowlitz below Mayfield Dam .....	67
Skagit at Concrete .....	142

*For more information contact your local Natural Resources Conservation Service office.*



# BASIN SUMMARY OF SNOW COURSE DATA

JANUARY 2005

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00	SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
ACTANUM R.S.	3100	1/04/05	11	1.8	2.7	3.7	M F NOOKSACK SNOTEL	4980	1/01/05	36	11.0	31.0	--
ALPINE MEADOWS SNTL	3500	1/01/05	22	7.0	23.7	20.1	MICA CREEK SNOTEL	4750	1/01/05	20	6.2	12.2	11.7
ASHLEY DIVIDE	4820	12/28/04	4	.7	2.6	3.4	MINERS RIDGE SNOTEL	6200	1/01/05	---	15.0	19.9	26.6
BADGER PASS SNOTEL	6900	1/01/05	35	9.1	13.8	15.2	MISSEZULA MTN CAN.	5080	12/30/04	9	1.5	4.5	--
BARKER LAKES SNOTEL	8250	1/01/05	26	4.9	5.8	6.7	MISSION CREEK CAN.	5840	1/01/05	---	14.3E	8.4	9.3
BARNES CREEK CAN.	5320	1/05/05	46	15.4	8.0	--	MONASHEE PASS CAN.	4500	1/05/05	31	8.7	--	6.6
BASIN CREEK SNOTEL	7180	1/01/05	13	2.3	3.7	3.7	MORSE LAKE SNOTEL	5400	1/01/05	---	9.9	23.2	23.4
BEAVER CREEK TRAIL	2200	12/28/04	7	1.8	10.2	--	MOSES MTN SNOTEL	4800	1/01/05	19	3.3	4.4	7.1
BEAVER PASS	3680	12/28/04	18	4.3	15.9	--	MOSQUITO RDG SNOTEL	5200	1/01/05	---	12.9	18.4	15.5
BEAVER PASS SNOTEL	3680	1/01/05	---	8.6	17.7	--	MOULTON RESERVOIR	6850	12/22/04	9	1.0	3.2	3.5
BERNE-MILL CREEK (d)	3170	1/01/05	21	3.4	13.9	12.6	MOUNT CRAG SNOTEL	4050	1/01/05	19	6.1	13.1	11.6
BLACK PINE SNOTEL	7100	1/01/05	17	3.5	5.0	5.2	MT. KOBAY CAN.	5500	12/27/04	18	4.0	4.4	5.4
BLACKWALL PEAK CAN.	6370	1/01/05	---	10.0E	16.1	15.4	MOWICH SNOTEL	3150	1/01/05	1	.5	1.0	--
BLEWETT PASS#2 SNOTEL	4270	1/01/05	6	1.3	5.8	8.2	MOUNT GARDNER SNOTEL	2860	1/01/05	---	.4	9.9	7.4
BRENDA MINE CAN.	4450	1/01/05	---	6.5E	7.1	5.9	N.F. ELK CR SNOTEL	6250	1/01/05	20	4.1	5.8	5.1
BROWN TOP AM	6000	12/28/04	47	13.7	32.0	--	NEVADA RIDGE SNOTEL	7020	1/01/05	24	4.7	7.1	6.8
BUMPING LAKE (NEW)	3400	1/04/05	12	4.2	8.6	7.2	NEW HOZOMEEN LAKE	2800	12/28/04	1	.1	--	--
BUMPING RIDGE SNOTEL	4600	1/01/05	14	3.8	14.1	12.1	NEZ PERCE CMP SNOTEL	5650	1/01/05	19	3.7	7.4	6.1
BUNCHGRASS MDWS SNOTEL	5000	1/01/05	39	10.3	13.6	12.6	NOISY BASIN SNOTEL	6040	1/01/05	55	15.4	13.0	19.8
BURNT MOUNTAIN PIL	4200	1/01/05	2	.8	--	--	OLALLIE MDWS SNOTEL	3960	1/01/05	---	6.0	25.2	22.2
CAYUSE PASS	5300	1/01/05	---	13.1E	--	34.8	OPHIR PARK	7150	1/01/05	20	3.5	5.5	6.6
CHESSMAN RESERVOIR	6200	12/27/04	4	.5	1.5	1.5	PARADISE PARK SNOTEL	5500	1/01/05	---	14.5	31.7	32.8
CHWAWKUM G.S.	2500	1/01/05	17	2.8	5.8	5.2	PARK CK RIDGE SNOTEL	4600	1/01/05	34	9.7	19.5	22.5
COMBINATION SNOTEL	5600	1/01/05	6	.8	2.7	2.2	PETERSON MDW SNOTEL	7200	1/01/05	17	2.8	4.9	4.4
COPPER BOTTOM SNOTEL	5200	1/01/05	10	.7	5.3	5.3	PIGTAIL PEAK SNOTEL	5900	1/01/05	36	10.0	24.9	23.1
CORRAL PASS SNOTEL	6000	1/01/05	---	8.0	16.4	15.8	PIKE CREEK SNOTEL	5930	1/01/05	27	7.1	10.1	12.0
COUGAR MTN. SNOTEL	3200	1/01/05	5	1.5	7.7	8.5	PIPESTONE PASS	7200	12/27/04	2	.5	2.0	2.2
COYOTE HILL	4200	12/30/04	10	1.9	5.7	4.3	POPE RIDGE SNOTEL	3540	1/01/05	21	4.5	8.1	9.8
DAILY CREEK SNOTEL	5780	1/01/05	18	3.9	6.1	4.9	POTATO HILL SNOTEL	4500	1/01/05	---	4.7	14.6	12.4
DISCOVERY BASIN	7050	12/30/04	19	2.8	4.9	4.2	QUARTZ PEAK SNOTEL	4700	1/01/05	15	4.6	10.7	10.2
DIX HILL	6400	1/01/05	14	2.3	4.2	4.5	RAINY PASS SNOTEL	4780	1/01/05	33	9.0	16.7	19.9
DOMMERIE FLATS	2200	1/04/05	6	.8	6.6	3.9	REX RIVER SNOTEL	1900	1/01/05	12	4.1	16.7	13.0
DUNGENESS SNOTEL	4100	1/01/05	7	.8	2.4	--	ROCKER PEAK SNOTEL	8000	1/01/05	22	3.7	5.8	6.4
ELBOW LAKE SNOTEL	3200	1/01/05	13	4.4	22.9	8.6	SADDLE MTN SNOTEL	7900	1/01/05	34	7.5	11.4	11.7
EMERY CREEK SNOTEL	4350	1/01/05	16	4.0	7.1	7.0	SALMON MDWS SNOTEL	4500	1/01/05	14	2.8	5.1	5.3
ENDERBY CAN.	5800	12/31/04	70	19.7	13.0	19.2	SASSE RIDGE SNOTEL	4200	1/01/05	21	4.8	15.8	14.7
FARRON CAN.	4000	1/02/05	27	5.8	6.2	--	SAVAGE PASS SNOTEL	6170	1/01/05	30	7.5	12.2	11.7
FISH CREEK	8000	12/22/04	10	1.2	3.2	4.4	SAWMILL RIDGE	4700	12/31/04	10	3.2	12.6	13.8
FISH LAKE	3370	1/04/05	27	5.1	18.2	14.5	SENTINEL BT SNOTEL	4920	1/01/05	15	3.2	--	--
FISH LAKE SNOTEL	3370	1/01/05	20	4.9	15.9	15.0	SHEEP CANYON SNOTEL	4050	1/01/05	---	5.9	15.6	15.4
FLATTOP MTN SNOTEL	6300	1/01/05	56	17.0	18.6	21.4	SHERWIN SNOTEL	3200	1/01/05	---	1.6	5.1	5.1
FOURTH OF JULY SUM	3200	1/03/05	5	1.0	5.5	3.7	SKALKAGO SNOTEL	7260	1/01/05	26	5.6	10.2	10.3
FROMNER MDWS SNOTEL	6480	1/01/05	17	3.1	4.0	3.4	SKOOKUM CREEK SNOTEL	3920	1/01/05	8	1.3	16.7	10.8
GRASS MOUNTAIN #2	2900	12/31/04	4	.8	4.4	4.6	SOURDOUGH GULCH SNTL	4000	1/01/05	0	.0	.4	--
GRAVE CRK SNOTEL	4300	1/01/05	24	5.3	8.6	7.7	SPENCER MDW SNOTEL	3400	1/01/05	---	4.6	16.0	12.5
GREEN LAKE SNOTEL	6000	1/01/05	22	5.4	9.9	10.7	SPIRIT LAKE SNOTEL	3100	1/01/05	---	2.4	4.9	--
GROUSE CAMP SNOTEL	5380	1/01/05	16	4.3	9.5	9.6	SPOTTED BEAR MTN.	7000	12/27/04	14	3.3	7.1	6.9
HAND CREEK SNOTEL	5030	1/01/05	12	2.6	5.5	5.9	SPRUCE SPRINGS SNTL	5700	1/01/05	15	3.0	6.7	--
HARTS PASS SNOTEL	6500	1/01/05	35	9.2	19.5	21.7	STAHL PEAK SNOTEL	6030	1/01/05	60	16.9	14.9	17.1
HELL ROARING DIVIDE	5770	12/30/04	42	10.8	11.1	13.4	STAMPEDE PASS SNOTEL	3860	1/01/05	12	4.0	19.0	19.4
HIGH RIDGE SNOTEL	4980	1/01/05	18	4.2	12.0	10.4	STEVENS PASS SNOTEL	4070	1/01/05	27	6.5	17.5	19.1
HOLBROOK	4530	12/27/04	12	3.5	6.2	4.2	STEVENS PASS SAND SD	3700	1/01/05	18	3.4	14.4	15.3
HOODOO BASIN SNOTEL	6050	1/01/05	46	12.3	17.7	19.3	STORM LAKE	7780	12/30/04	26	4.0	5.6	5.5
HUCKLEBERRY SNOTEL	2000	1/01/05	1	.4	1.0	--	SUMMERLAND RES CAN.	4200	12/29/04	17	3.2	3.8	4.5
HUMBOLDT GLCH SNOTEL	4250	1/01/05	---	1.7	7.2	6.0	SUNSET SNOTEL	5540	1/01/05	---	5.8	11.1	13.6
ISINTOK LAKE CAN.	5100	12/29/04	8	1.8	4.0	3.4	SURPRISE LKS SNOTEL	4250	1/01/05	---	7.8	22.9	20.3
JUNE LAKE SNOTEL	3200	1/01/05	32	6.3	18.1	17.1	SWAMP CREEK SNOTEL	4000	1/01/05	10	3.0	11.8	--
KELLOGG PEAK	5560	1/02/05	20	7.0	16.1	11.7	TEN MILE LOWER	6600	12/27/04	6	1.0	3.6	3.0
KLESILKWA CAN.	3450	12/28/04	0	.0	6.5	4.6	TEN MILE MIDDLE	6800	12/27/04	11	2.6	4.8	4.6
KRAFT CREEK SNOTEL	4750	1/01/05	18	3.4	6.4	6.9	THUNDER BASIN SNOTEL	4200	1/01/05	---	9.6	14.9	15.7
LESTER CREEK	3100	12/31/04	13	2.5	8.2	8.5	TINKHAM CREEK SNOTEL	3000	1/01/05	---	4.1	12.8	12.3
LOLO PASS SNOTEL	5240	1/01/05	30	6.7	14.1	13.0	TOUCHET SNOTEL	5530	1/01/05	21	5.3	12.9	14.7
LONE PINE SNOTEL	3800	1/01/05	---	6.9	19.8	16.2	TRINKUS LAKE	6100	12/27/04	54	16.8	16.7	19.4
LOOKOUT SNOTEL	5140	1/01/05	27	6.4	14.3	13.7	TROUGH #2 SNOTEL	5310	1/01/05	8	1.3	5.0	5.3
LOST HORSE SNOTEL	5000	1/01/05	15	3.5E	9.5	8.3	TRUMAN CREEK	4060	12/29/04	0	.0	2.4	2.0
LOST LAKE SNOTEL	6110	1/01/05	---	15.9	25.1	27.1	TUNNEL AVENUE	2450	1/05/05	8	1.2	10.9	8.3
LUBRECHT FOREST NO 3	5450	12/31/04	8	.8	2.3	2.7	TV MOUNTAIN	6800	12/27/04	20	3.9	8.9	7.8
LUBRECHT FOREST NO 4	4650	12/31/04	5	.6	1.1	1.4	TWELVEMILE SNOTEL	5600	1/01/05	20	4.7	11.0	7.5
LUBRECHT FOREST NO 6	4040	12/31/04	6	.6	1.2	1.6	TWIN CAMP	4100	12/31/04	14	3.7	9.8	10.2
LUBRECHT HYDROPLOT	4200	12/31/04	9	1.0	2.0	2.5	TWIN LAKES SNOTEL	6400	1/01/05	43	12.1	22.1	17.5
LUBRECHT SNOTEL	4680	1/01/05	8	.8	3.5	2.6	UPPER HOLLAND LAKE	6200	12/27/04	35	9.6	16.3	15.2
LYMAN LAKE SNOTEL	5900	1/01/05	---	18.4	15.7	29.7	UPPER WHEELER SNOTEL	4400	1/01/05	10	2.8	6.8	5.9
LYNN LAKE	4000	12/31/04	13	3.4	7.9	8.2	WARM SPRINGS SNOTEL	7800	1/01/05	30	6.6	9.7	9.4
MARIAS PASS	5250	12/29/04	12	2.6	6.9	7.3	WEASEL DIVIDE	5450	1/03/05	48	11.7	14.4	15.2
MEADOWS PASS SNOTEL	3240	1/01/05	10	2.3	14.8	9.6	WELLS CREEK SNOTEL	4200	1/01/05	27	7.3	19.3	--
MERRITT	2140	1/01/05	11	1.3	7.8	7.0	WHITE PASS ES SNOTEL	4500	1/01/05	10	2.6	9.5	10.7





Natural Resources Conservation Service

Washington State

Snow, Water and Climate Services

## Program Contacts

RL "Gus" Hughbanks  
State Conservationist  
Spokane State Office  
W. 316 Boone Ave., Suite 450  
Spokane, WA 99201-2348  
phone: 509-323-2961  
fax: 509-323-2979  
[gus.hughbanks@wa.usda.gov](mailto:gus.hughbanks@wa.usda.gov)

Scott Pattee  
Water Supply Specialist  
Washington Snow Survey Office  
2021 E. College Way, Suite 214  
Mount Vernon, WA 98273-2873  
phone: 360-428-7684  
fax: 360-424-6172  
[scott.pattee@wa.usda.gov](mailto:scott.pattee@wa.usda.gov)

Jon Lea  
DCO Supervisor  
Oregon Data Collection Office  
101 SW Main St, Suite 1300  
Portland, OR 97204  
Phone: 503-414-3267  
Fax: 503-414-3277  
[jon.lea@or.usda.gov](mailto:jon.lea@or.usda.gov)

James Marron  
Resource Conservationist  
National Water and Climate Center  
101 SW Main St., Suite 1600  
Portland, OR 97204-3224  
phone: 503-414-3047  
fax: 503-414-3101  
[jmarron@wcc.nrcs.usda.gov](mailto:jmarron@wcc.nrcs.usda.gov)

## Helpful Internet Addresses

### NRCS Snow Survey and Climate Services Homepages

Washington:

<http://www.wa.nrcs.usda.gov/snow>

Oregon:

<http://www.or.nrcs.usda.gov/snow>

Idaho:

<http://www.id.nrcs.usda.gov/snow>

National Water and Climate Center (NWCC):

<http://www.wcc.nrcs.usda.gov>

NWCC Anonymous FTP Server:

<ftp.wcc.nrcs.usda.gov>

### USDA-NRCS Agency Homepages

Washington:

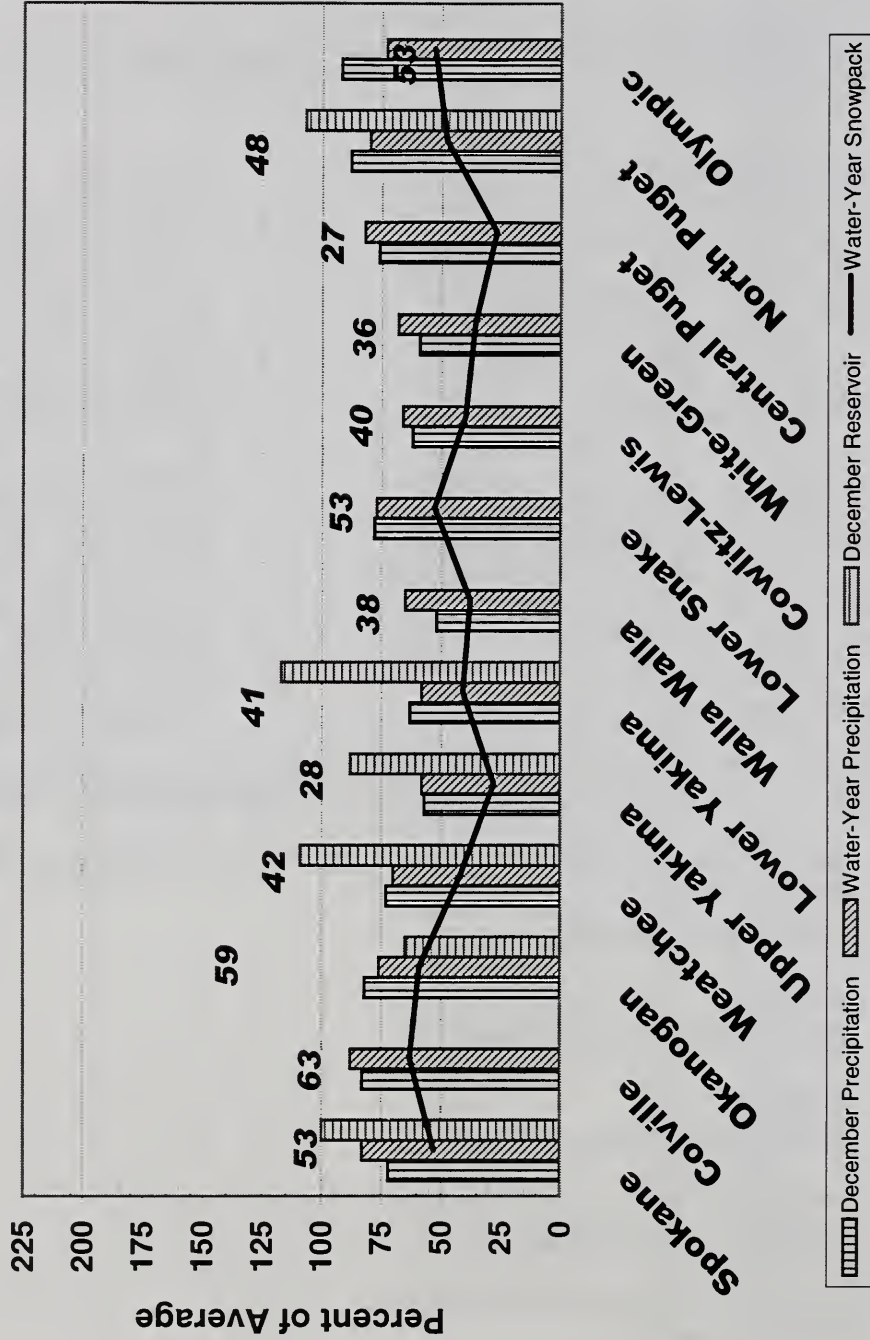
<http://www.wa.nrcs.usda.gov/nrcs>

NRCS National:

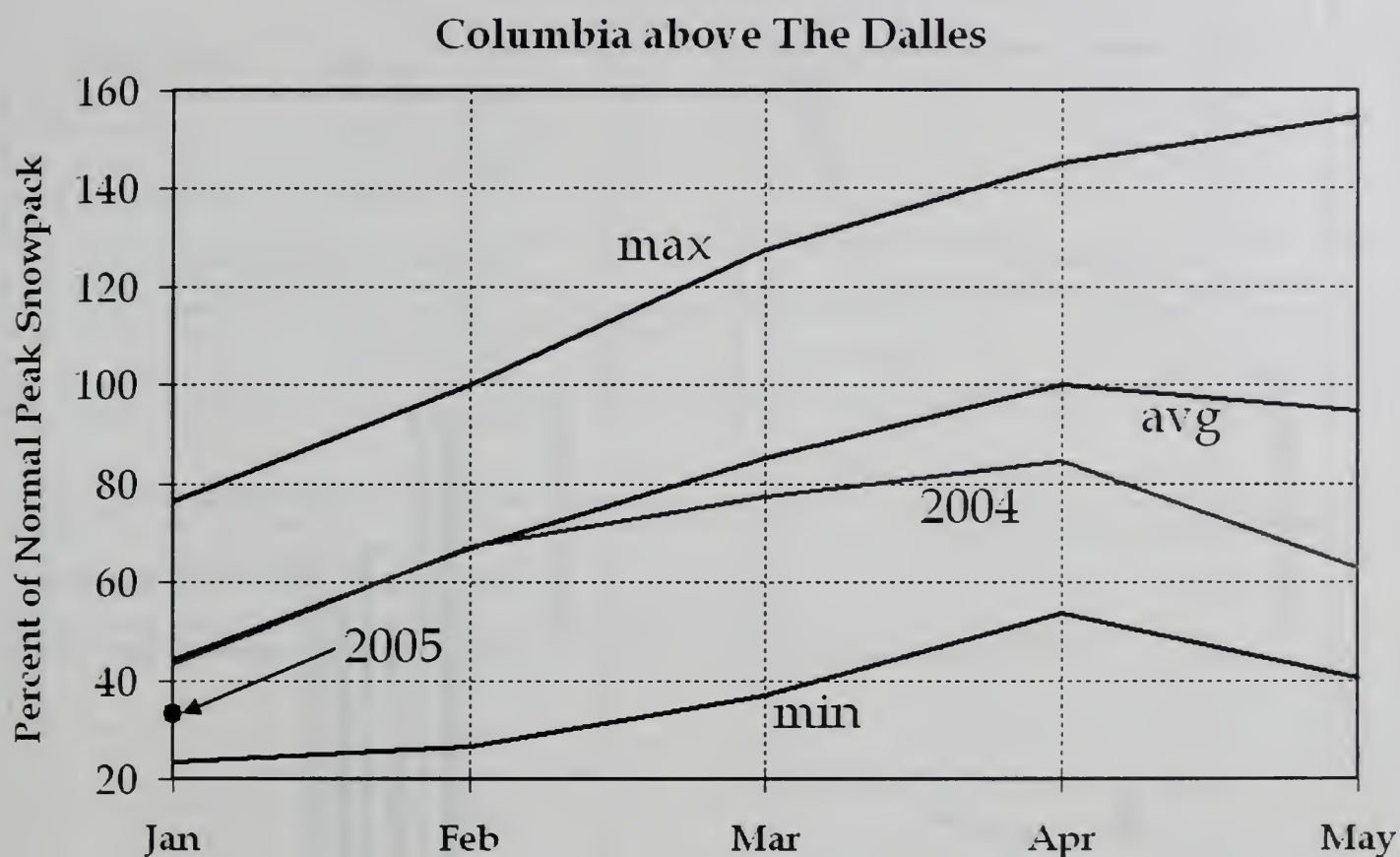
<http://www.nrcs.usda.gov>

# January 1, 2005 - Snowpack, Precipitation and Reservoir Conditions at a Glance

(Water Year = October 1, 2004 - Current Date)



# Columbia Basin Snowpack Summary



January 1, 2005

The Columbia Basin snowpack is currently at 75 percent of average. This compares to 98 percent of average last year. The overall snowpack is at 33 percent of the average peak accumulation. This compares to 43 percent last year.

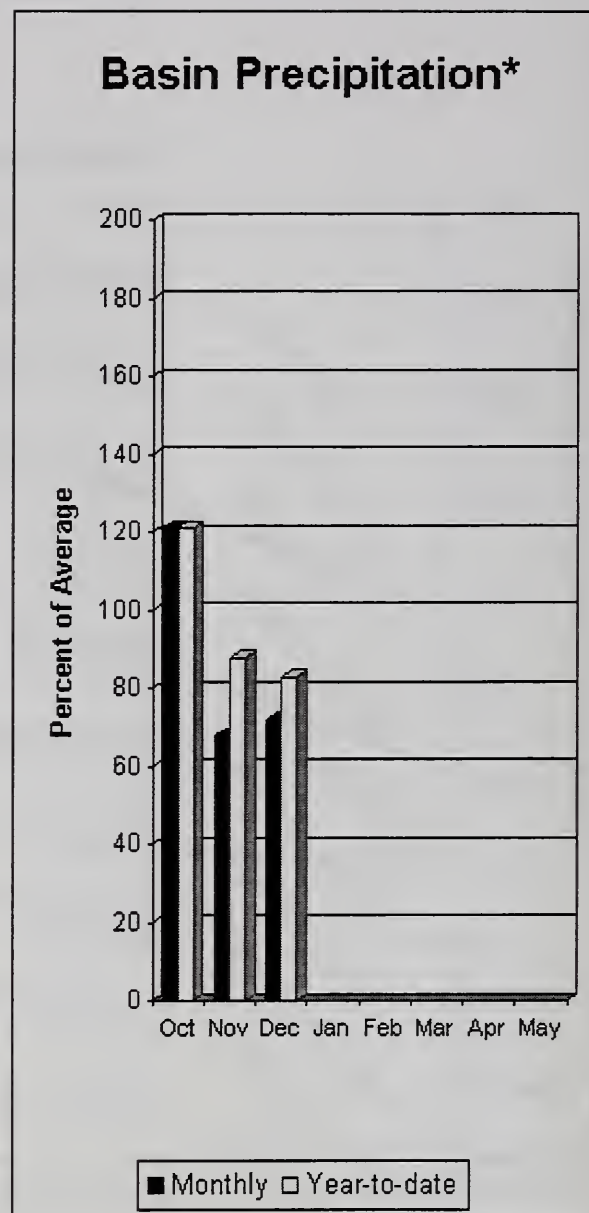
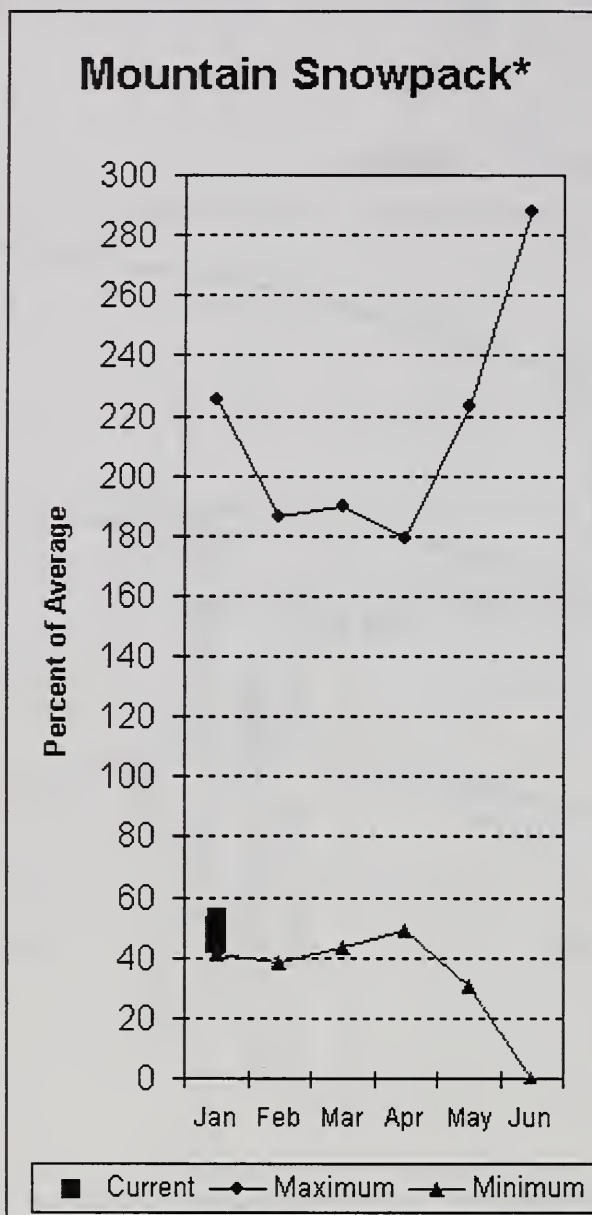
The snowpack in the Columbia Basin above Castlegar is at 81 percent of average. This compares to 90 percent last year. For the basin above Grand Coulee, the snowpack is at 79 percent of average, compared to 94 percent last year. The Snake River snowpack above Ice Harbor is at 73 percent of average, compared to 109 percent last year.

The Canadian snowpack is in the best shape this year at 88 percent of average. Over the rest of the Columbia Basin, the snowpack can be categorized as poor to almost nonexistent! Record low snowpack levels were measured at several snow courses in the Cascades, northeast Oregon, north central Idaho, and western Montana. Near record lows were measured at many more snow courses. Snow surveyors recorded only 35 percent of average snowpack over the entire Yakima Basin. Snowpacks in the North Cascades, Clearwater, John Day/Umatilla, and the Bitterroot basins are also in poor shape at this time.

There is plenty of time for the snowpacks to recover before the spring snowmelt. However, weather forecasters aren't helping out in this regard. They are forecasting dry, warm weather through March.



# Spokane River Basin



\*Based on selected stations

The January 1 forecasts for summer runoff within the Spokane River Basin are 66% of average near Post Falls and 70% at Long Lake. The Chamokane River near Long Lake forecasted to have 54% of average flows for the May-August period. The forecast is based on a basin snowpack that is 53% of average and precipitation that is 83% of average for the water year. Precipitation for December was below normal at 72% of average. Streamflow on the Spokane River at Long Lake was 140% of average for December. January 1 storage in Coeur d'Alene Lake was 110,500 acre feet, 100% of average and 46% of capacity. Snowpack at Quartz Peak SNOTEL site was 45% of average with 4.6 inches of water content. Average temperatures in the Spokane basin were 5 degrees above normal December and 2 degrees above for the water year.

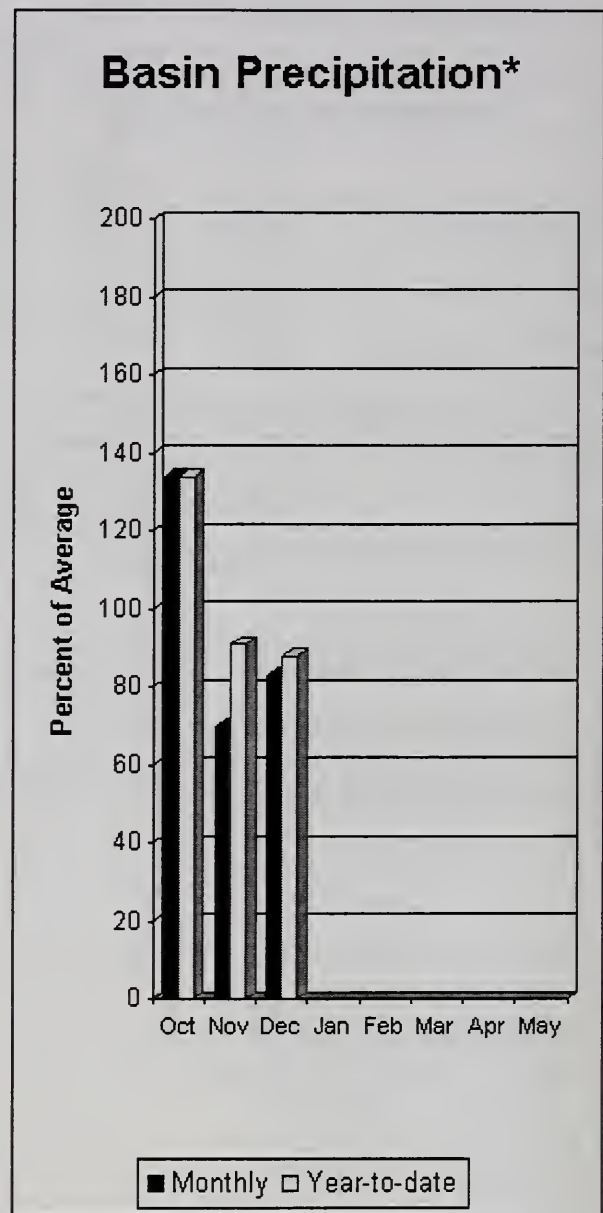
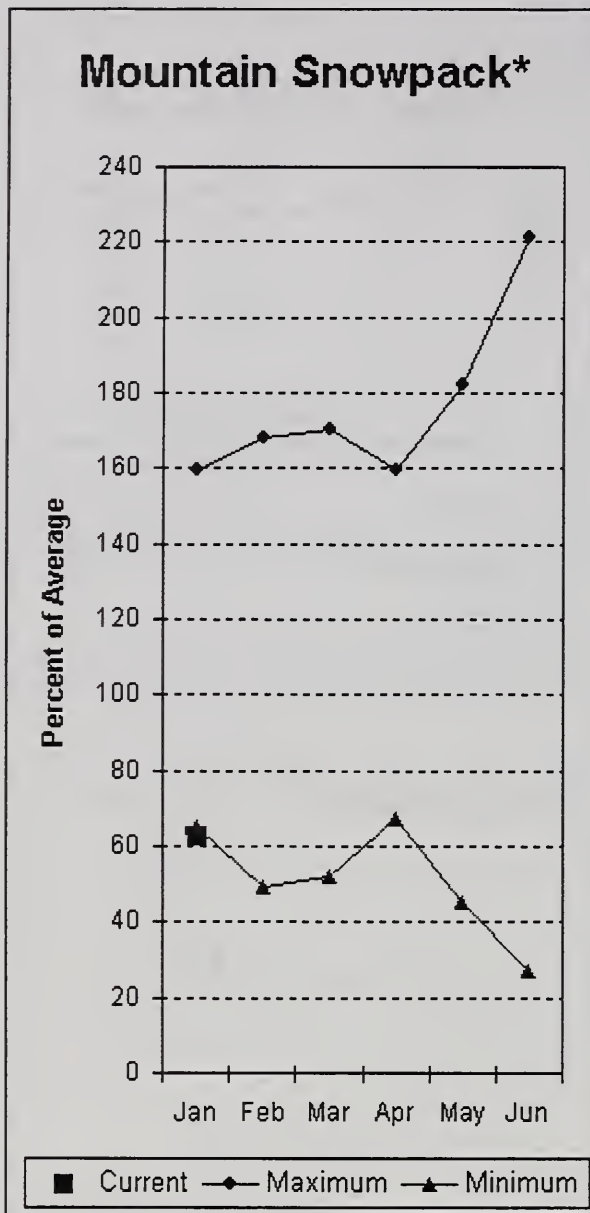
*For more information contact your local Natural Resources Conservation Service office.*

# Spokane River Basin

## SPOKANE RIVER BASIN Streamflow Forecasts - January 1, 2005

Forecast Point	Forecast Period	<----- Drier ----- Future Conditions ----- Wetter ----->						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
SPOKANE near Post Falls (2)	APR-SEP	900	1400	1750	66	2100	2600	2650
	APR-JUL	860	1350	1690	66	2030	2520	2550
SPOKANE at Long Lake (2)	APR-JUL	910	1550	1980	70	2410	3050	2850
	APR-SEP	1020	1690	2150	70	2610	3280	3070
CHAMOKANE CREEK near Long Lake	MAY-AUG	2.7	4.4	5.5	54	7.6	10.7	10.2

## Colville - Pend Oreille River Basins



\*Based on selected stations

The April – September average forecast for the Kettle River streamflow is 88%, Colville at Kettle Falls is 57%, and Priest River near the town of Priest River is 82%. December streamflow was 129% of average on the Pend Oreille River, 130% on the Columbia at the International Boundary and 238% on the Kettle River. January 1 snow cover was 63% of average in the Pend Oreille Basin River Basin. Bunchgrass Meadows SNOTEL site had 10.3 inches of snow water on the snow pillow. Normally Bunchgrass would have 12.6 inches on January 1. Precipitation during December was 83% of average, bringing the year-to-date precipitation to 88% of average. Average temperatures were 5 degrees above normal for December and 2 degrees above for the water year.

*For more information contact your local Natural Resources Conservation Service office.*



# Colville - Pend Oreille River Basins

## Streamflow Forecasts - January 1, 2005

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	{% AVG.}	30% (1000AF)	10% (1000AF)	
PEND OREILLE Lake Inflow (2)	APR-JUL	5190	7670	9350	74	11030	13510	12700
	APR-SEP	5660	8360	10200	73	12040	14740	13900
PRIEST near Priest River (1,2)	APR-JUL	460	600	665	82	730	870	815
	APR-SEP	380	605	710	82	815	1040	870
PEND OREILLE bl Box Canyon (2)	APR-JUL	6030	8170	9620	75	11070	13210	12900
	APR-SEP	5960	8660	10500	75	12340	15040	14100
COLVILLE at Kettle Falls	APR-SEP	28	60	81	57	102	134	141
	APR-JUL	22	52	72	56	92	122	128
KETTLE near Laurier	APR-SEP	1340	1580	1740	88	1900	2140	1970
	APR-JUL	1270	1500	1650	88	1800	2030	1870
COLUMBIA at Birchbank (1,2)	APR-JUL	25907	31610	34200	98	36790	42490	34900
	APR-SEP	32213	39356	42600	98	45840	52990	43500
COLUMBIA at Grand Coulee Dm (1,2)	APR-SEP	40045	52530	58200	91	63870	76350	64000
	APR-JUL	33776	44245	49000	91	53750	64220	53800

### COLVILLE - PEND OREILLE RIVER BASINS Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage ***		
		This Year	Last Year	Avg
ROOSEVELT		NO REPORT		
BANKS		NO REPORT		

### COLVILLE - PEND OREILLE RIVER BASINS Watershed Snowpack Analysis - January 1, 2005

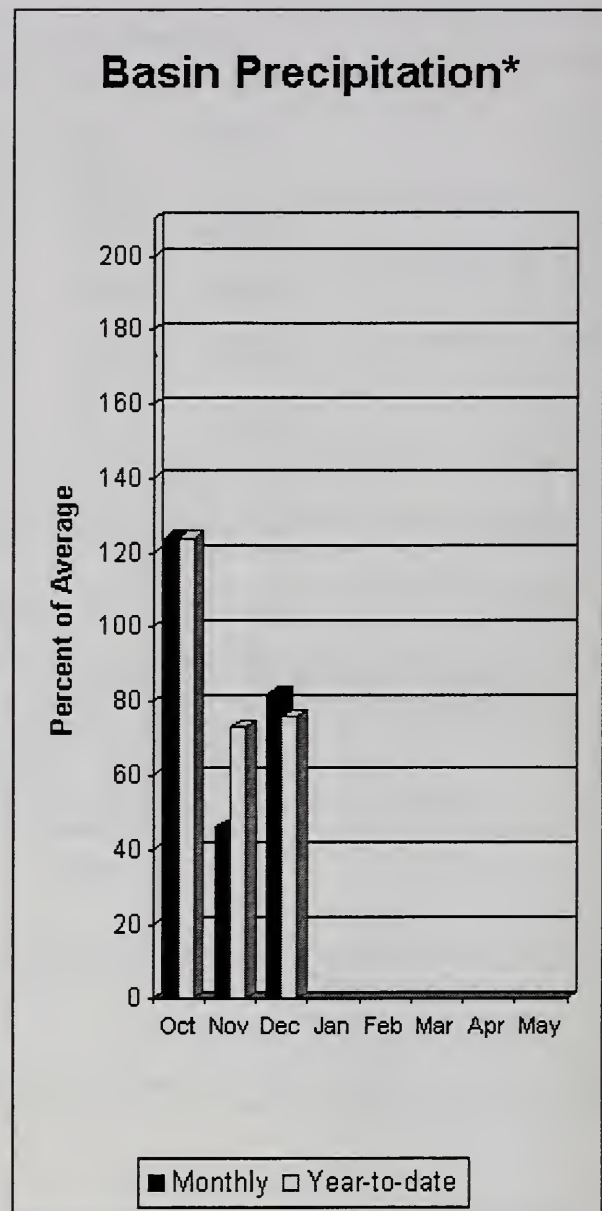
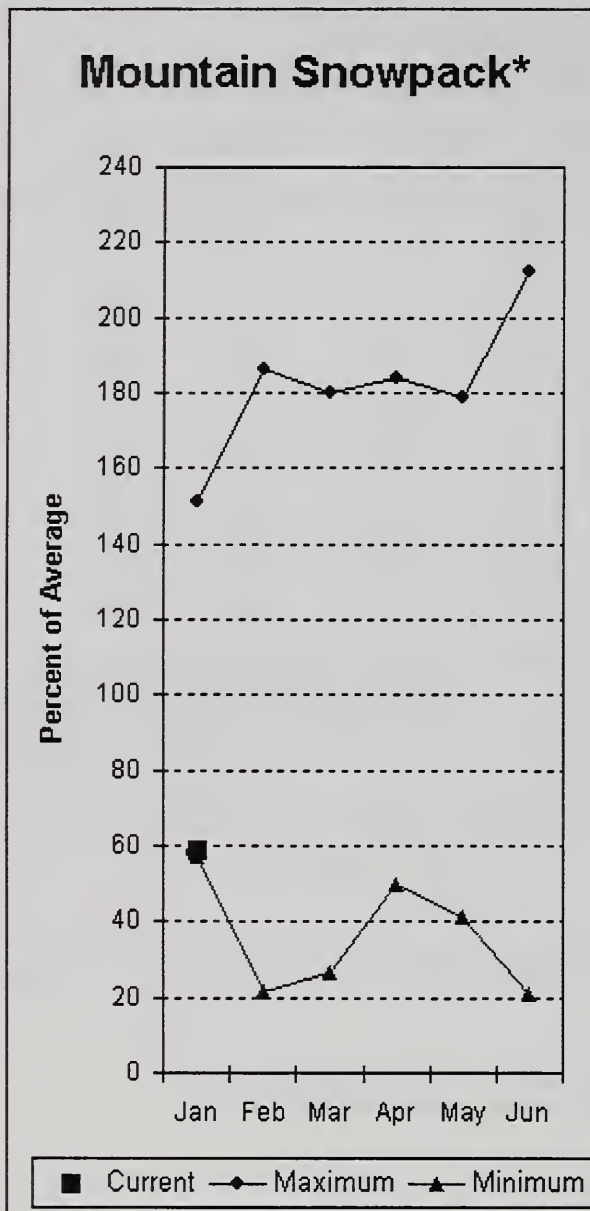
Watershed	Number of Data Sites	This Year as % of	
		Last Yr	Average
COLVILLE RIVER	0	0	0
PEND OREILLE RIVER	8	57	60
KETTLE RIVER	1	149	132

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural volume - actual volume may be affected by upstream water management.

## Okanogan - Methow River Basins



\*Based on selected stations

Summer runoff average forecast for the Okanogan River is 73%, Similkameen River is 70%, Methow River is 68% and Salmon Creek is 40%. January 1 snow cover on the Okanogan was 72% of average, Omak Creek was 46% and the Methow was 45%. December precipitation in the Okanogan-Methow was 82% of average, with precipitation for the water year at 76% of average. December streamflow for the Methow River was 103% of average, 179% for the Okanogan River and 213% for the Similkameen. Snow-water content at Salmon Meadows SNOTEL was 2.8 inches. Average for this site is 5.3 inches on January 1. Combined storage in the Conconully Reservoirs was 10,500-acre feet, which is 45% of capacity and 65% of the January 1 average. Temperatures were 7-8 degrees above normal for December and 2-3 degrees above normal for the water year.

*For more information contact your local Natural Resources Conservation Service office.*

# Okanogan - Methow River Basins

## Streamflow Forecasts - January 1, 2005

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg (1000AF)
		===== Chance Of Exceeding * =====						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
SIMILKAMEEN near Nighthawk (1)	APR-JUL	642	819	940	70	1150	1600	1350
	APR-SEP	666	871	1010	70	1250	1780	1450
OKANOGAN near Tonasket (1)	APR-JUL	777	1005	1160	73	1410	1960	1580
	APR-SEP	840	1114	1300	73	1600	2260	1770
OKANOGAN at Malott (1)	APR-JUL	799	1032	1190	73	1450	2020	1635
	APR-SEP	863	1141	1330	73	1640	2320	1826
Salmon Creek nr Conconully	APR-JUL	2.0	4.8	7.4	40	10.6	16.3	18.7
	APR-SEP	2.0	5.0	7.8	40	11.2	17.5	19.7
TOATS COULEE CREEK nr Conconully	APR-JUL	4.6	13.8	20	71	29	41	28
	APR-SEP	5.5	14.7	21	70	30	43	30
Beaver Creek blw SF nr Twisp	APR-SEP	1.6	4.1	5.8	48	9.3	14.5	12.1
	APR-JUL	1.4	3.9	5.6	51	9.0	14.1	11.1
METHOW RIVER near Pateros	APR-SEP	275	510	670	68	830	1065	985
	APR-JUL	335	500	615	68	730	900	910

### OKANOGAN - METHOW RIVER BASINS Reservoir Storage (1000 AF) - End of December

### OKANOGAN - METHOW RIVER BASINS Watershed Snowpack Analysis - January 1, 2005

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
SALMON LAKE	10.5	6.3	---	8.5	OKANOGAN RIVER	8	83	78
CONCONULLY RESERVOIR	13.0	4.2	---	7.7	OMAK CREEK	1	75	46
					SANPOIL RIVER	0	0	0
					SIMILKAMEEN RIVER	0	33	0
					TOATS COULEE CREEK	0	0	0
					CONCONULLY LAKE	1	55	53
					METHOW RIVER	3	51	45

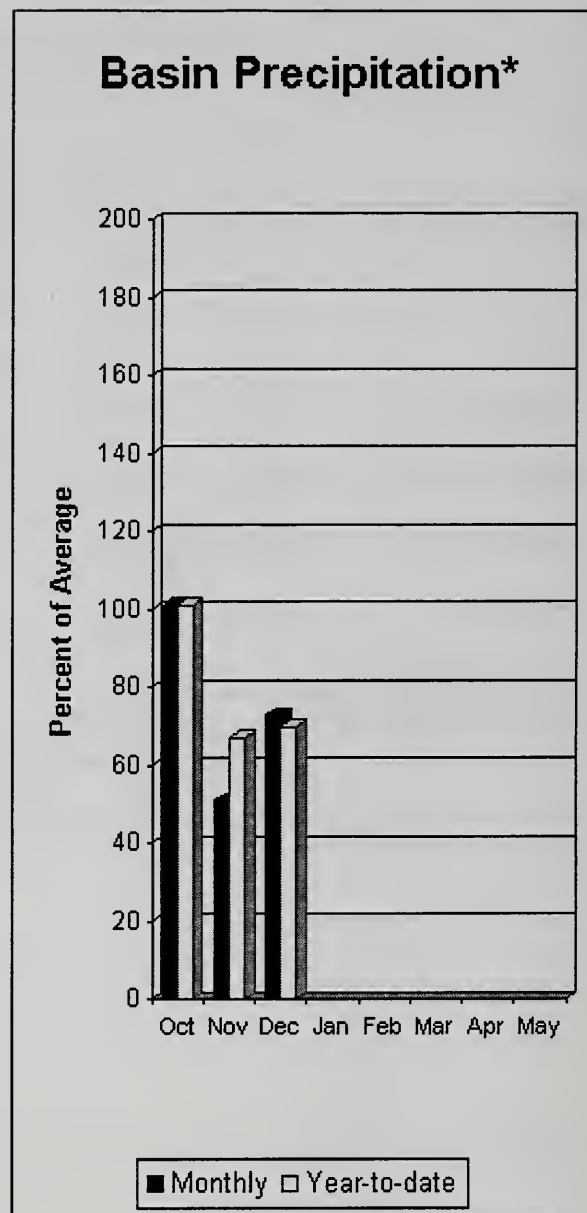
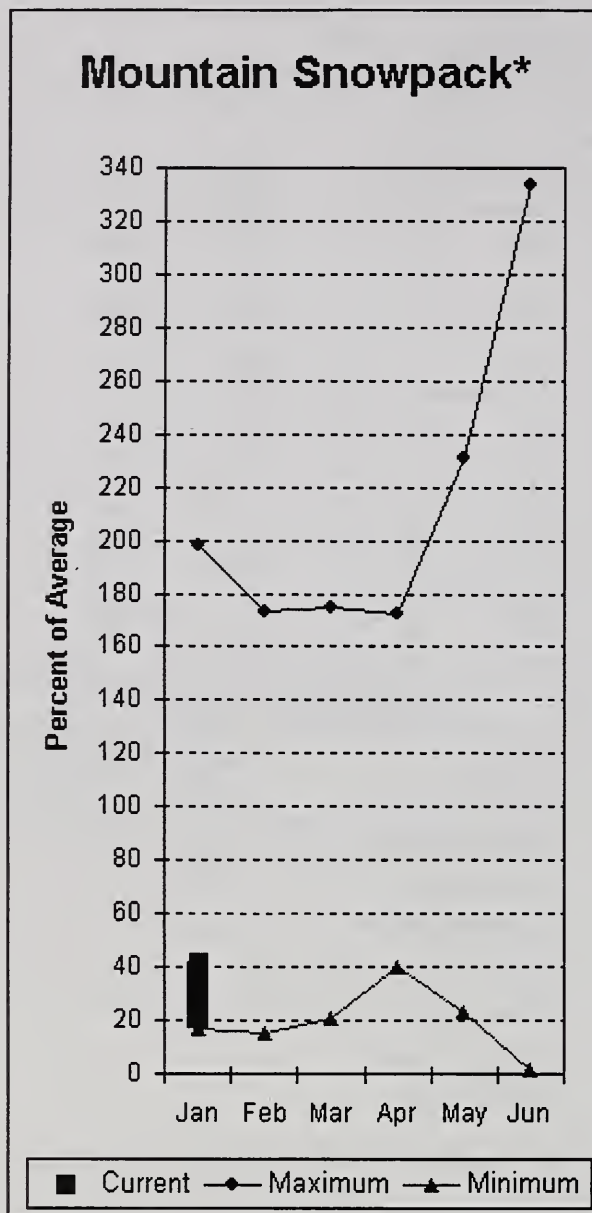
\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural volume - actual volume may be affected by upstream water management.



## Wenatchee - Chelan River Basins



\*Based on selected stations

Precipitation during December was 73% of average in the basin and 70% for the year-to-date. Runoff for Entiat River is forecast to be 63% of average for the summer. The January-September average forecast for Chelan River is 69%, Wenatchee River at Plain is 57% and Stehekin is 71%. Icicle, Stemilt and Squilchuck creeks are all forecasted to have below average flows. December average streamflows on the Chelan River were 157% and on the Wenatchee River 152%. January 1 snowpack in the Wenatchee River Basin was 37% of average; the Chelan, 53%; the Entiat, 46%; Stemilt Creek, 47% and Colockum Creek, 25%. Reservoir storage in Lake Chelan was 431,800-acre feet, 109% of January 1 average and 64% of capacity. Lyman Lake SNOTEL had the most snow water with 18.4 inches of water. This site would normally have 29.7 inches on January 1. Temperatures were 5-7 degrees above normal for December and 2-3 degrees above normal for the water year.

*For more information contact your local Natural Resources Conservation Service office.*

# Wenatchee - Chelan River Basins

## Streamflow Forecasts - January 1, 2005

Forecast Point	Forecast Period	<----- Drier ----- Future Conditions ----- Wetter ----->						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
CHELAN RIVER near Chelan	APR-SEP	665	755	815	69	880	970	1190
	APR-JUL	590	660	710	68	760	830	1050
STEHEKIN near STEHEKIN	APR-SEP	480	545	590	71	635	700	830
	APR-JUL	425	470	500	71	530	575	700
ENTIAT RIVER nr Ardenvoir	APR-SEP	80	123	152	63	181	225	240
	APR-JUL	73	113	140	65	167	205	215
WENATCHEE at Plain	APR-SEP	513	612	680	57	800	970	1200
	APR-JUL	501	581	635	59	730	870	1080
WENATCHEE R. at Peshastin	APR-SEP	930	1210	1400	85	1590	1870	1640
	APR-JUL	509	831	1050	71	1270	1590	1480
STEMILT CK nr Wenatchee (miner's in)	MAY-SEP	23	60	85	62	110	147	138
ICICLE CREEK near Leavenworth	APR-SEP	175	215	240	70	265	305	345
	APR-JUL	160	195	220	69	245	280	320
COLUMBIA R. bl Rock Island Dam (2)	APR-SEP	47079	56439	62800	90	69160	78520	69500
	APR-JUL	36335	46436	53300	90	60160	70260	59000

### WENATCHEE - CHELAN RIVER BASINS Reservoir Storage (1000 AF) - End of December

### WENATCHEE - CHELAN RIVER BASINS Watershed Snowpack Analysis - January 1, 2005

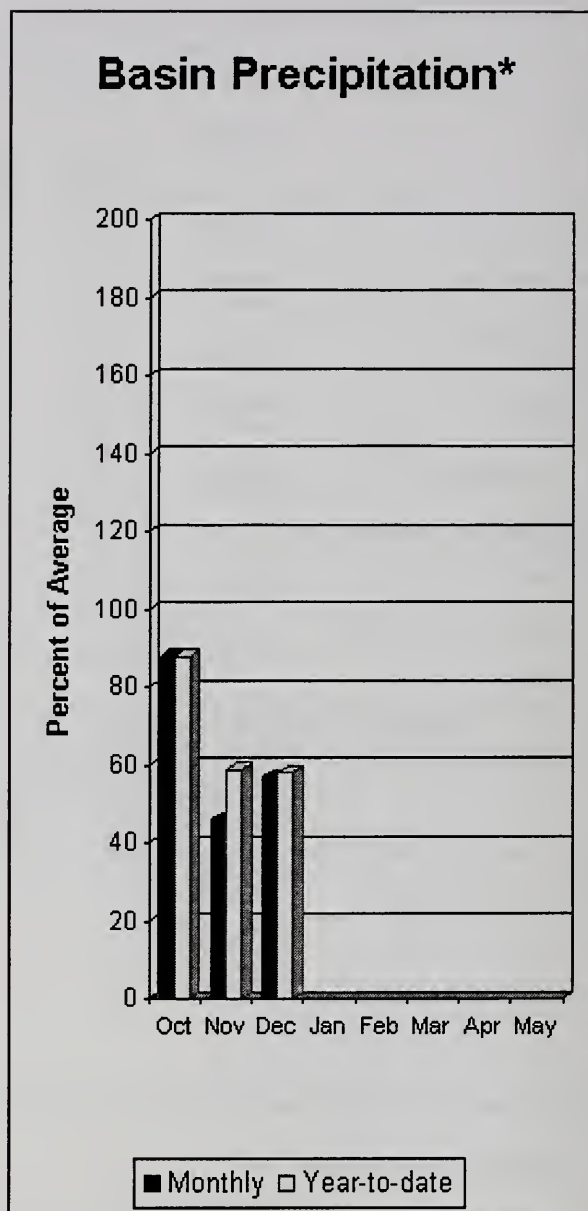
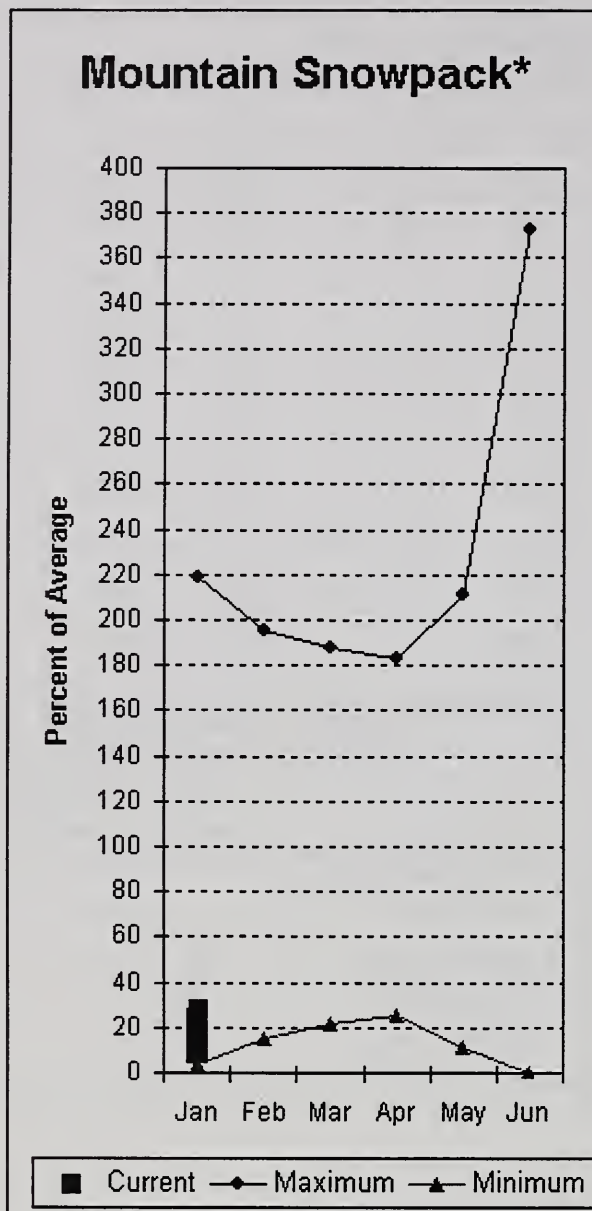
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CHELAN LAKE	676.1	431.8	---	396.9	CHELAN LAKE BASIN	4	73	53
					ENTIAT RIVER	1	56	46
					WENATCHEE RIVER	11	40	37
					STEMILT CREEK	1	41	47
					COLOCKUM CREEK	1	26	25

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural volume - actual volume may be affected by upstream water management.

# Upper Yakima River Basin



\*Based on selected stations

January 1 reservoir storage for the Upper Yakima reservoirs was 348,700-acre feet, 88% of average. Forecasts for the Yakima River at Cle Elum are 70% of average and the Teanaway River near Cle Elum is at 58%. Lake inflows are all forecasted to be near that same range this summer. December streamflows within the basin were Yakima near Cle Elum at 115% and Cle Elum River near Roslyn at 138%. January 1 snowpack was 28% based upon 6 snow courses and SNOTEL readings within the Upper Yakima Basin. Precipitation was 57% of average for December and 58% year-to-date for water. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

For more information contact your local Natural Resources Conservation Service office.



# Upper Yakima River Basin

## Streamflow Forecasts - January 1, 2005

		<<===== Drier ===== Future Conditions ===== Wetter =====>>						
Forecast Point	Forecast Period	Chance Of Exceeding *						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	
KEECHELUS LAKE INFLOW	APR-JUL	48	70	85	70	100	122	121
	APR-SEP	54	78	94	71	110	134	133
KACHESS LAKE INFLOW	APR-JUL	41	63	77	69	91	113	111
	APR-SEP	46	69	84	70	99	122	120
CLE ELUM LAKE INFLOW	APR-JUL	175	240	280	68	320	385	410
	APR-SEP	195	265	310	69	355	425	450
YAKIMA at Cle Elum	APR-JUL	345	480	570	70	660	795	820
	APR-SEP	390	530	630	70	730	870	900
TEANAWAY near Cle Elum	APR-JUL	42	66	82	57	98	122	143
	APR-SEP	44	68	84	58	100	124	146

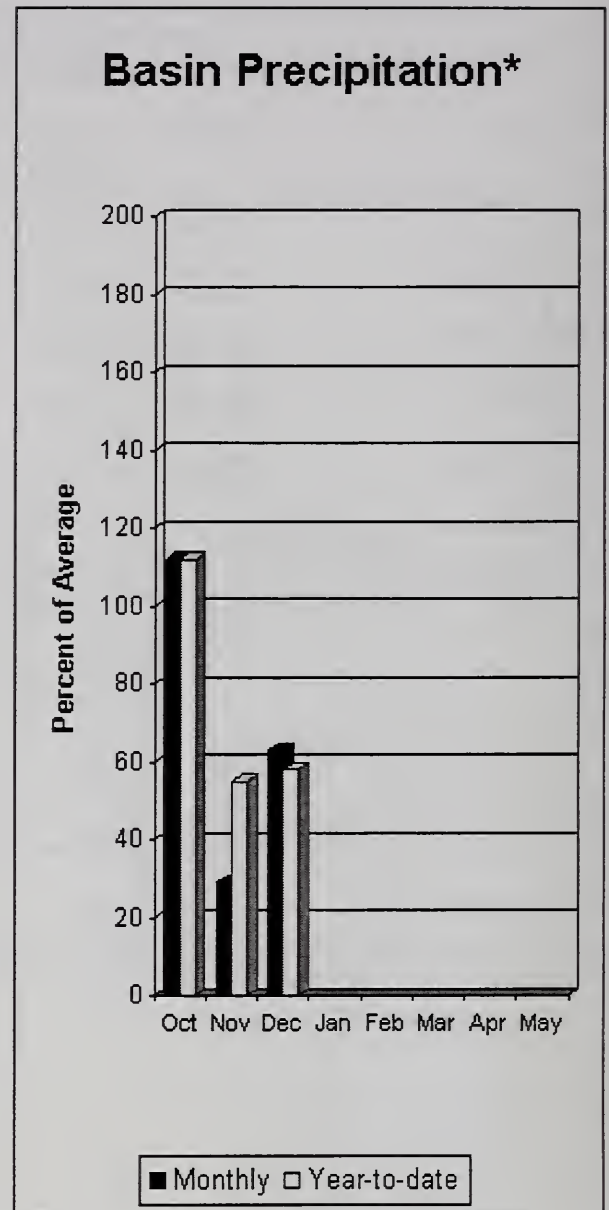
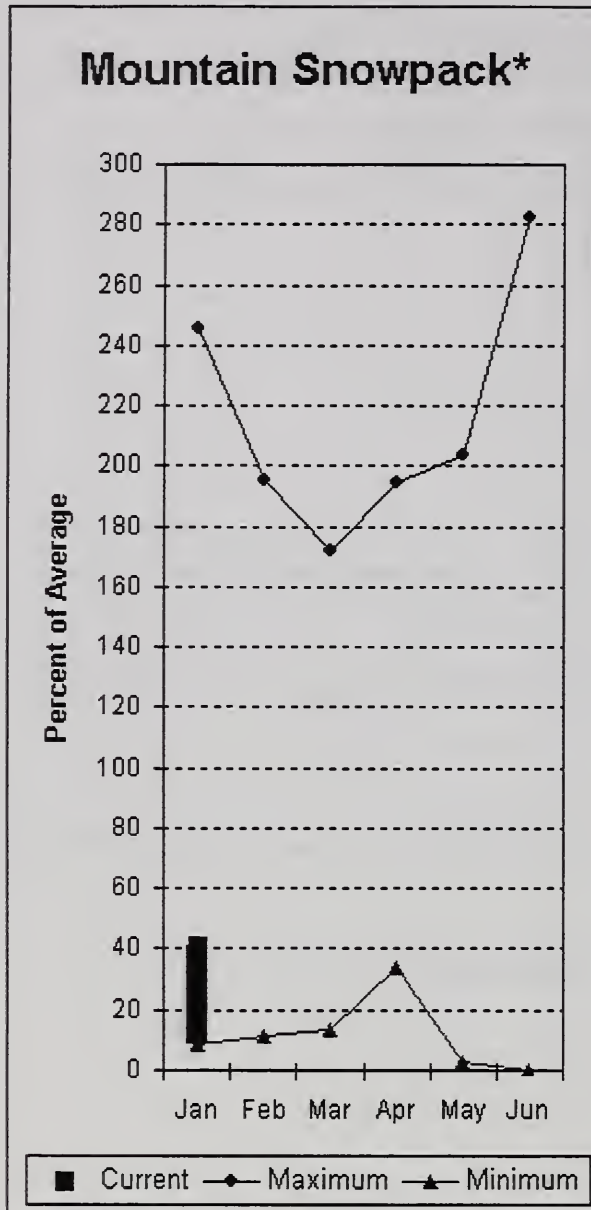
UPPER YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of December					UPPER YAKIMA RIVER BASIN Watershed Snowpack Analysis - January 1, 2005			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
KEECHELUS	157.8	74.2	---	78.0	UPPER YAKIMA RIVER	9	26	28
KACHESS	239.0	93.3	---	125.5				
CLE ELUM	436.9	181.2	---	194.7				

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.

## Lower Yakima River Basin



\*Based on selected stations

December average streamflows within the basin were: Yakima River near Parker, 92%; Naches River near Naches, 74%; and Yakima River at Kiona, 56%. January 1 reservoir storage for Bumping and Rimrock reservoirs was 129,800-acre feet, 117% of average. Forecast averages for Yakima River near Parker are 64%; American River near Nile, 61%; Ahtanum Creek, 66%; and Klickitat River near Glenwood, 58%. January 1 snowpack was 41% based upon 6 snow courses and SNOTEL readings within the Lower Yakima Basin and Ahtanum Creek reported in at %47 of average. Precipitation was 63% of average for December and 58% year-to-date for water. Temperatures were 5 degrees above normal December and 2 degrees above average for the water year. Volume forecasts for Yakima Basin are for natural flow. As such, they January differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

*For more information contact your local Natural Resources Conservation Service office.*

# Lower Yakima River Basin

## Streamflow Forecasts - January 1, 2005

		<===== Drier ===== Future Conditions ===== Wetter =====>						
Forecast Point	Forecast Period	Chance Of Exceeding *						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	
=====								
BUMPING LAKE INFLOW	APR-SEP	45	69	85	64	101	125	132
	APR-JUL	43	64	78	64	92	113	122
AMERICAN RIVER near Nile	APR-SEP	41	59	72	61	85	103	118
	APR-JUL	37	54	66	61	78	95	108
RIMROCK LAKE INFLOW	APR-SEP	117	136	150	63	172	207	240
	APR-JUL	82	109	128	62	147	175	205
NACHES near Naches	APR-SEP	320	445	530	64	615	740	835
	APR-JUL	285	400	480	63	560	675	760
AHTANUM CREEK at Union Gap	APR-SEP	5.3	14.7	21	66	27	37	32
	APR-JUL	4.3	13.1	19.0	63	25	34	30
YAKIMA near Parker	APR-SEP	725	1020	1220	64	1420	1710	1920
	APR-JUL	635	910	1100	64	1290	1560	1730
KLUCKITAT near Glenwood	APR-JUN	40	62	76	59	90	112	129
	APR-SEP	50	77	95	58	113	140	163

LOWER YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of December					LOWER YAKIMA RIVER BASIN Watershed Snowpack Analysis - January 1, 2005		
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of Last Yr Average
		This Year	Last Year	Avg			
BUMPING LAKE	33.7	20.0	---	10.3			
RIMROCK	198.0	109.8	---	101.1			

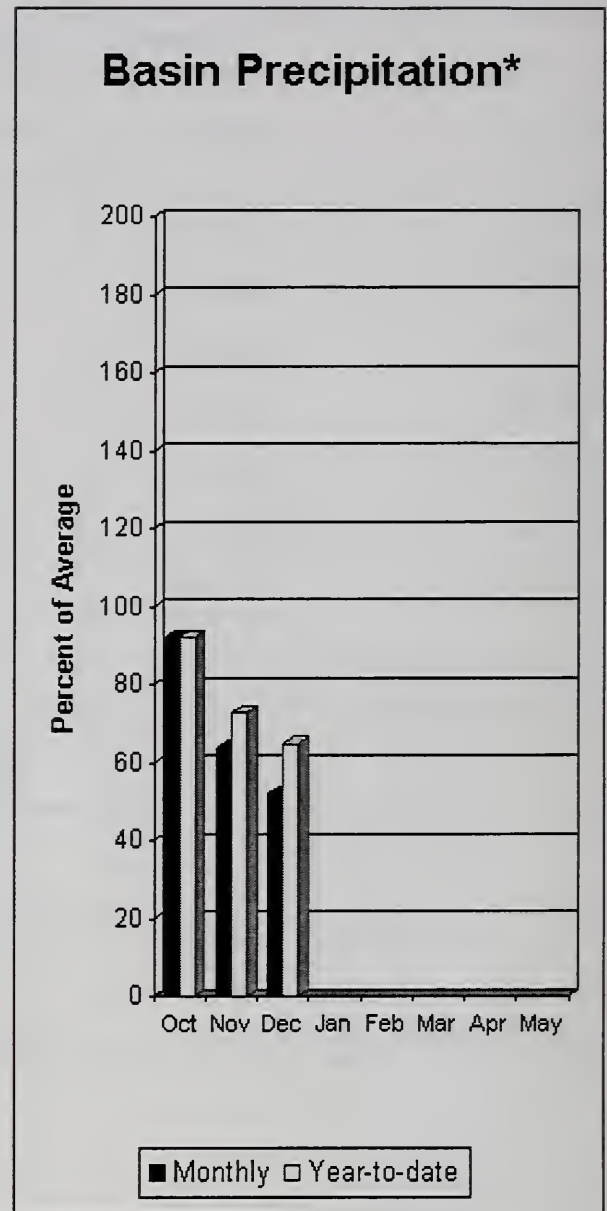
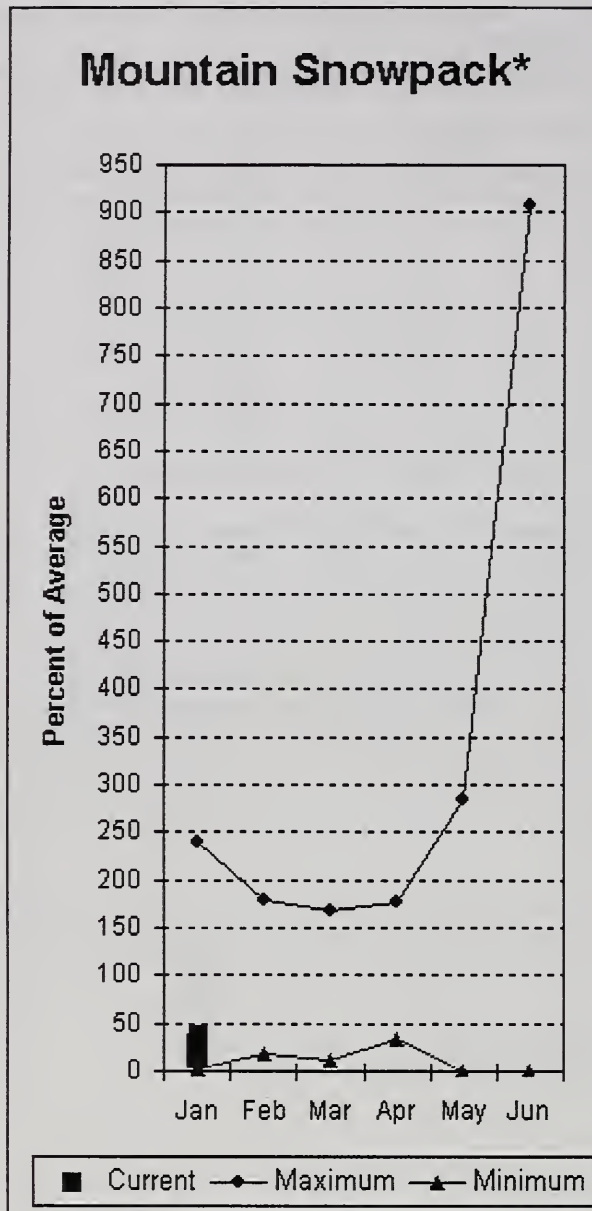
\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural volume - actual volume may be affected by upstream water management.



# Walla Walla River Basin



\*Based on selected stations

December precipitation was 52% of average, maintaining the year-to-date precipitation at 65% of average. Snowpack in the basin was 38% of average. Streamflow forecasts are 44% of average for Mill Creek and 63% for the SF Walla Walla near Milton-Freewater. December streamflow was 82% of average for the Walla Walla River. Average temperatures were 4 degrees above normal for December and 1 degree above average for the water year.

For more information contact your local Natural Resources Conservation Service office.

# Walla Walla River Basin

## Streamflow Forecasts - January 1, 2005

		<===== Drier ===== Future Conditions ===== Wetter =====>						
Forecast Point	Forecast Period	===== Chance Of Exceeding * =====					30-Yr Avg. (1000AF)	
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)		10% (1000AF)
=====								
MILL CREEK at Walla Walla	APR-SEP	3.7	6.3	8.1	44	12.1	18.0	18.4
	APR-JUL	3.6	6.2	7.9	43	11.9	18.0	18.2
=====								
SF WALLA WALLA near Milton-Freewater	APR-JUL	26	30	33	61	38	45	54
	APR-SEP	34	39	42	63	47	55	67

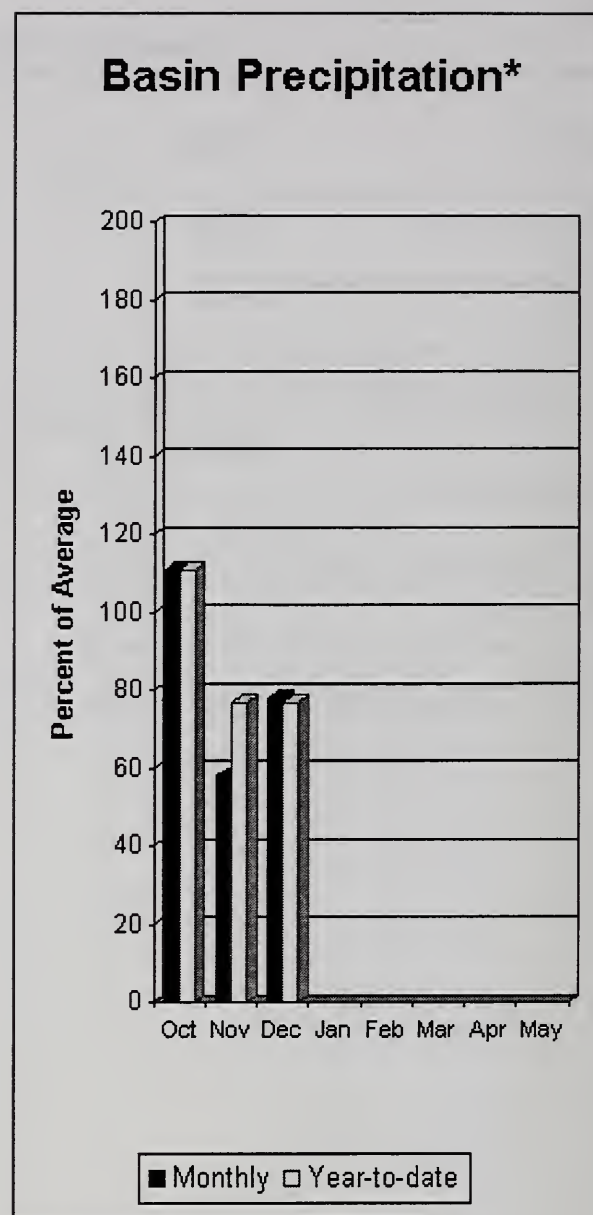
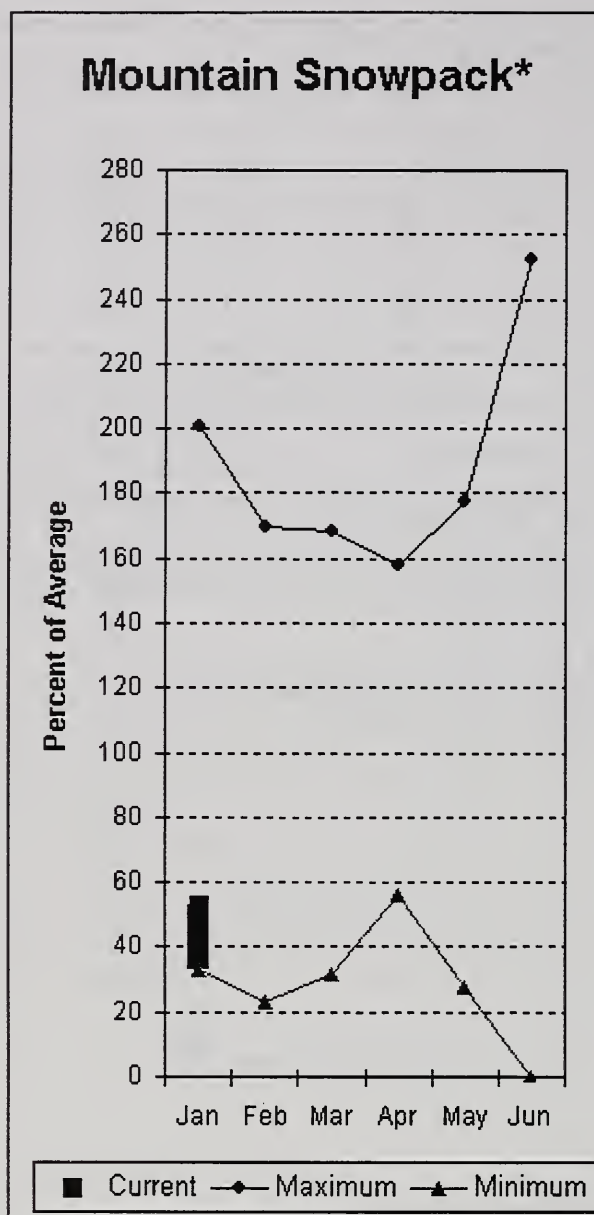
WALLA WALLA RIVER BASIN Reservoir Storage (1000 AF) - End of December					WALLA WALLA RIVER BASIN Watershed Snowpack Analysis - January 1, 2005			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					WALLA WALLA RIVER	2	38	38

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.

## Lower Snake River Basin



\*Based on selected stations

The April - September forecast is for 76% for Clearwater River at Spalding. The Snake and Grande Ronde rivers can expect summer flows to be about 69% and 77% of normal respectively. December precipitation was 78% of average, bringing the year-to-date precipitation to 77% of average. January 1 snowpack readings averaged 53% of normal. December streamflow was 81% of average for Snake River below Lower Granite Dam and 56% for Grande Ronde River near Troy. Average temperatures were 4 degrees above normal for December and 2 degrees above normal for the water year.

*For more information contact your local Natural Resources Conservation Service office.*



# Lower Snake River Basin

## Streamflow Forecasts - January 1, 2005

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions ===== Wetter =====>						
		-----		Chance Of Exceeding *		-----		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
GRANDE RONDE at Troy (1)	MAR-JUL	467	978	1210	77	1440	1955	1580
	APR-SEP	376	840	1050	77	1260	1725	1370
CLEARWATER at Spalding (1,2)	APR-JUL	3742	4860	5620	76	6790	9360	7430
	APR-SEP	3994	5147	5930	76	7100	9670	7850
SNAKE blw Lower Granite Dam (1,2)	APR-JUL	4027	11504	14900	69	18300	25770	21600
	APR-SEP	4482	12884	16700	69	20520	28920	24100

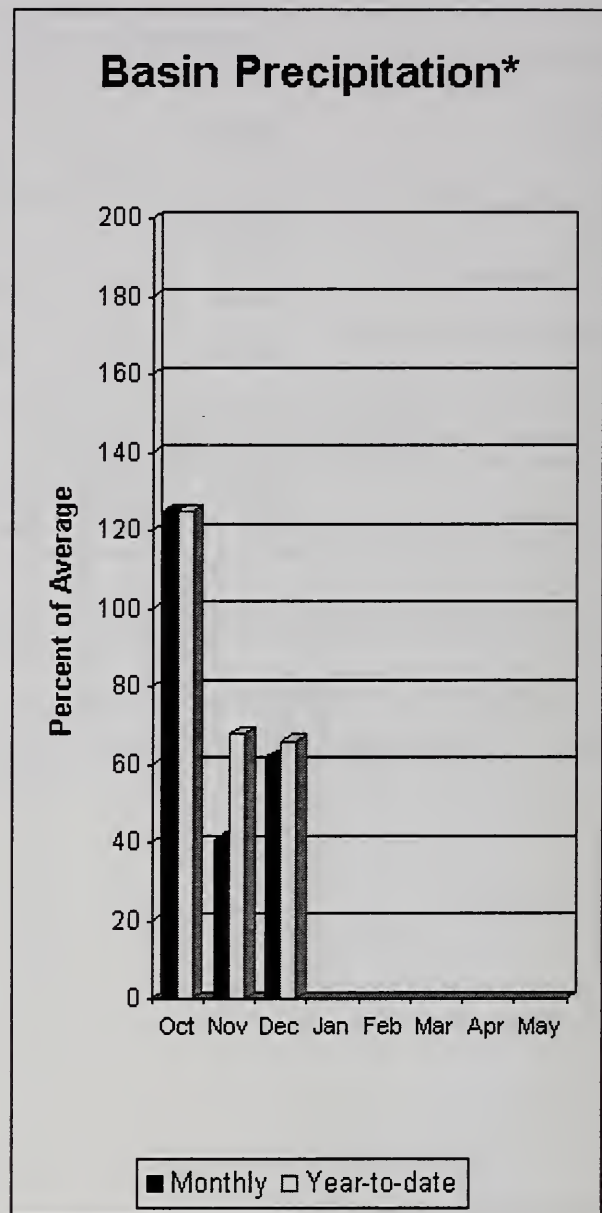
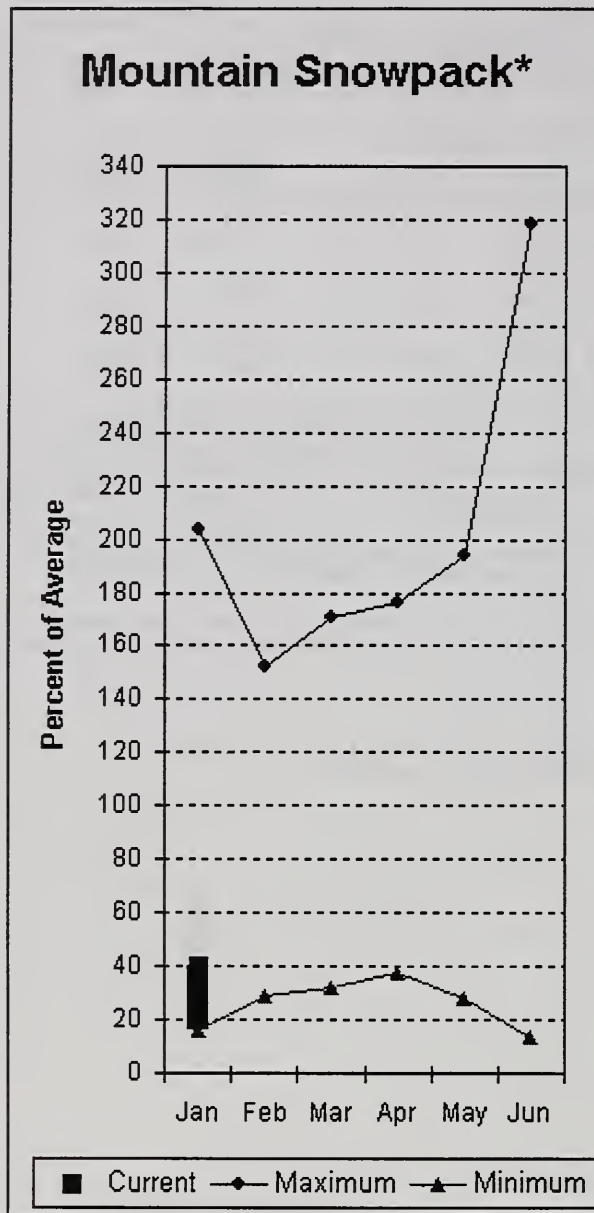
LOWER SNAKE RIVER BASIN Reservoir Storage (1000 AF) - End of December					LOWER SNAKE RIVER BASIN Watershed Snowpack Analysis - January 1, 2005			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of =====	
		This Year	Last Year	Avg			Last Yr	Average
					LOWER SNAKE, GRANDE RONDE	11	51	53

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural volume - actual volume may be affected by upstream water management.

## Cowlitz - Lewis River Basins



\*Based on selected stations

Forecasts for April – September streamflows within the basin are Lewis River at Ariel, 77% and Cowlitz River at Castle Rock, 76% of average. The Columbia at The Dalles is forecasted to have 96% of average flows this summer. December average streamflow for Cowlitz River was 67% and 79% for Lewis River. The Columbia River at The Dalles was 108% of average. December precipitation was 62% of average and the water-year average was 66%. January 1 snow cover for Cowlitz River was 40%, and Lewis River was 39% of average. Average temperatures were 4 degrees above normal during December and 2 degrees above normal throughout the water year.

*For more information contact your local Natural Resources Conservation Service office.*

# Cowlitz - Lewis River Basins

## Streamflow Forecasts - January 1, 2005

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions ===== Wetter =====>						
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
LEWIS at Ariel (2)	APR-JUL	475	660	790	77	920	1105	1031
	APR-SEP	575	770	900	77	1035	1225	1176
COWLITZ R. bl Mayfield Dam (2)	APR-SEP	110	926	1480	77	2035	2850	1922
	APR-JUL	68	747	1300	77	1855	2670	1689
COWLITZ R. at Castle Rock (2)	APR-SEP	93	1228	2000	76	2770	3910	2639
	APR-JUL	1158	1505	1740	76	1975	2320	2295
KLICKITAT near Glenwood	APR-JUN	40	62	76	59	90	112	129
	APR-SEP	50	77	95	58	113	140	163
COLUMBIA R. at The Dalles (2)	APR-SEP	55724	69404	78700	80	88000	101680	98600
	APR-JUL	42432	57358	67500	80	77640	92570	84600

COWLITZ - LEWIS RIVER BASINS Reservoir Storage (1000 AF) - End of December					COWLITZ - LEWIS RIVER BASINS Watershed Snowpack Analysis - January 1, 2005			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					LEWIS RIVER	4	33	39
					COWLITZ RIVER	6	40	39

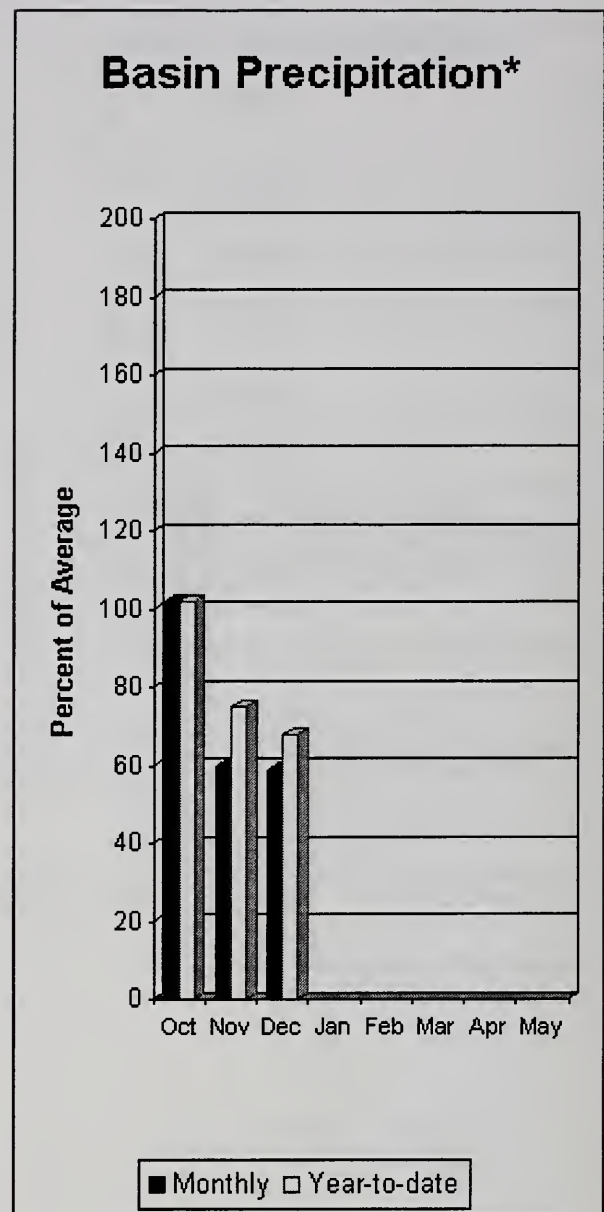
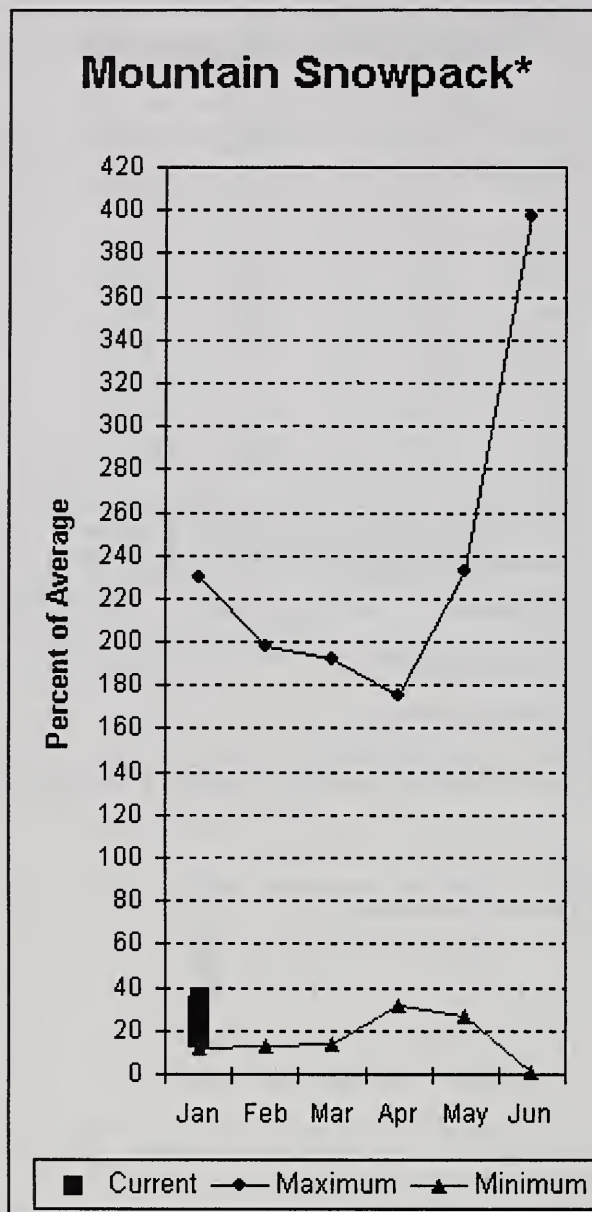
\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural volume - actual volume may be affected by upstream water management.



## White - Green River Basins



\*Based on selected stations

Summer runoff is forecast to be 74% of normal for the Green River below Howard Hanson Dam and 75% for the White River near Buckley. January 1 snowpack was 46% of average in both White River and Puyallup River basins and 26% in Green River Basin. Water content on January 1 at Corral Pass SNOTEL, at an elevation of 6,000 feet, was 8 inches. This site has a January 1 average of 15.8 inches. December precipitation was 59% of average, bringing the water year-to-date to 68% of average for the basins. Average temperatures in the area were 3-4 degrees above normal for December and 1-2 degrees above normal for the water-year.

*For more information contact your local Natural Resources Conservation Service office.*

# White - Green - Puyallup River Basins

## Streamflow Forecasts - January 1, 2005

		<<===== Drier ===== Future Conditions ===== Wetter =====>>						
Forecast Point	Forecast Period	=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
WHITE near Buckley (1,2)	APR-JUL	200	290	330	75	370	460	440
	APR-SEP	255	355	400	75	445	545	534
GREEN below Howard Hanson (1,2)	APR-JUL	56	138	175	72	210	295	243
	APR-SEP	71	159	199	74	240	325	268

### WHITE - GREEN - PUYALLUP RIVER BASINS Reservoir Storage (1000 AF) - End of December

### WHITE - GREEN - PUYALLUP RIVER BASINS Watershed Snowpack Analysis - January 1, 2005

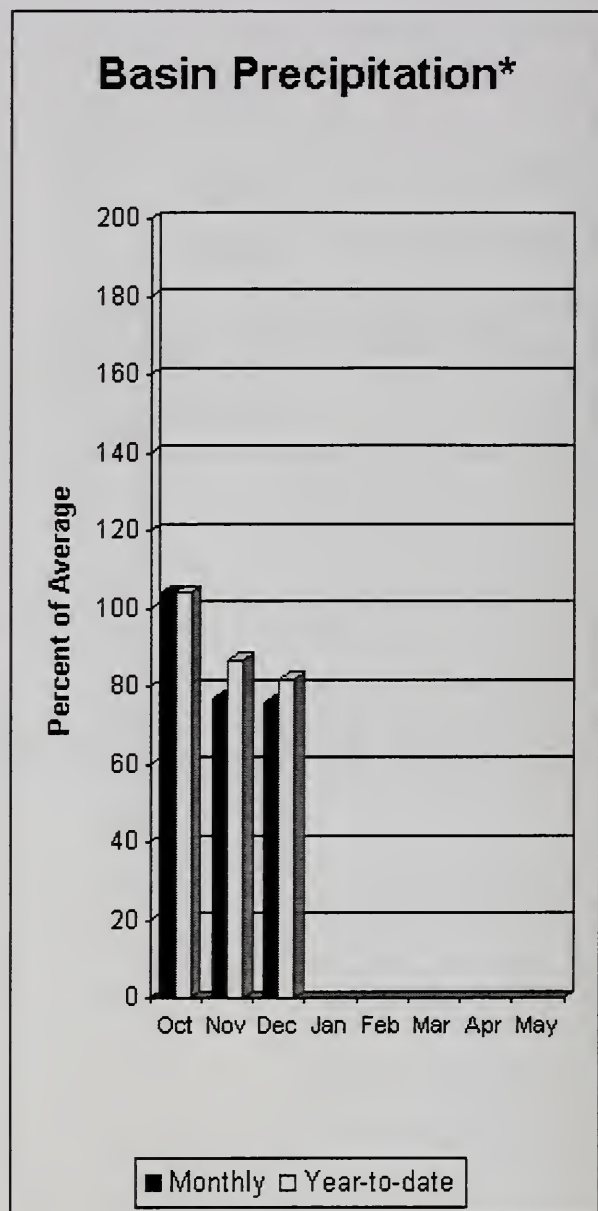
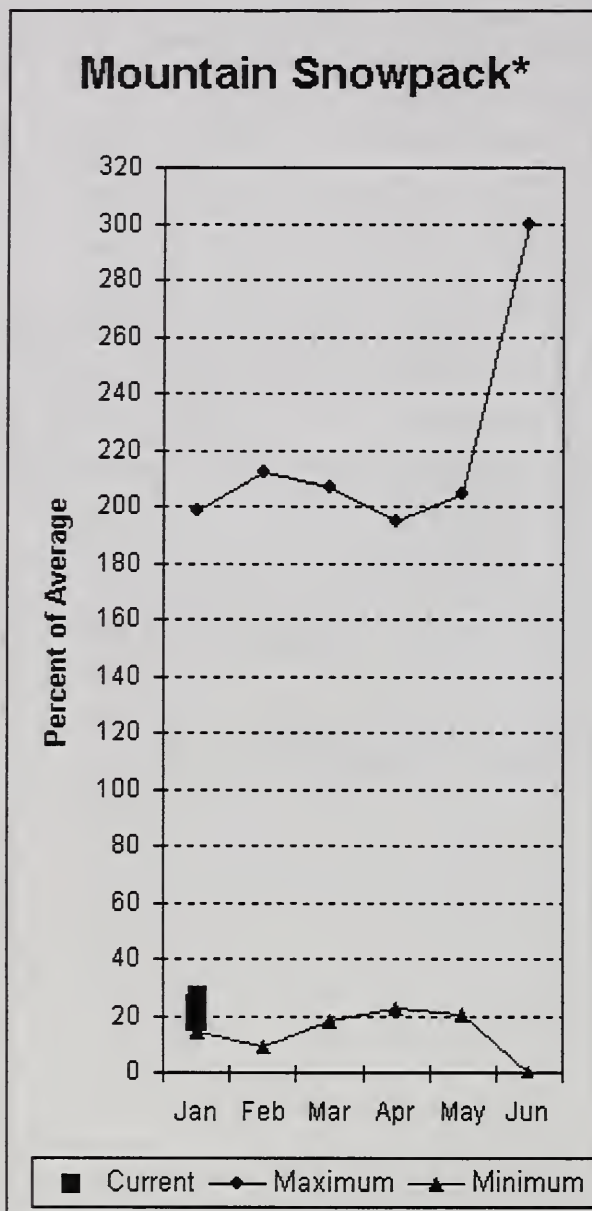
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					WHITE RIVER	3	45	42
					GREEN RIVER	7	27	26
					PUYALLUP RIVER	3	45	42

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural volume - actual volume may be affected by upstream water management.

## Central Puget Sound River Basins



\*Based on selected stations

Forecast for spring and summer flows are: 73% for Cedar River near Cedar Falls; 71% for Rex River; 71% for South Fork of the Tolt River; and 63% for Cedar River at Cedar Falls. Basin-wide precipitation for December was 76% of average, bringing water-year-to-date to 82% of average. January 1 average snow cover in Cedar River Basin was 26%, Tolt River Basin was 27%, Snoqualmie River Basin was 25%, and Skykomish River Basin was 31%. Olallie Meadows SNOTEL site, at 3960 feet, had 6 inches of water content. Average January 1 water content is 22.2 inches at Olallie Meadows. Temperatures were 3 degrees above average for December and 1-2 degrees above normal for the water-year.

For more information contact your local Natural Resources Conservation Service office.



# Central Puget Sound River Basins

## Streamflow Forecasts - January 1, 2005

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		90%		50%		30%		
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
CEDAR near Cedar Falls	APR-JUL	24	41	52	71	63	80	73
	APR-SEP	29	46	58	73	70	87	80
REX near Cedar Falls	APR-JUL	6.0	12.6	17.0	68	21	28	25
	APR-SEP	8.3	15.3	20	71	25	32	28
CEDAR RIVER at Cedar Falls	APR-JUL	2.3	29	47	64	65	92	74
	APR-SEP	2.2	27	46	63	65	94	73
SOUTH FORK TOLT near Index	APR-JUL	6.3	8.5	10.0	68	11.5	13.7	14.7
	APR-SEP	7.7	10.3	12.0	71	13.7	16.3	16.9

### CENTRAL PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of December

### CENTRAL PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - January 1, 2005

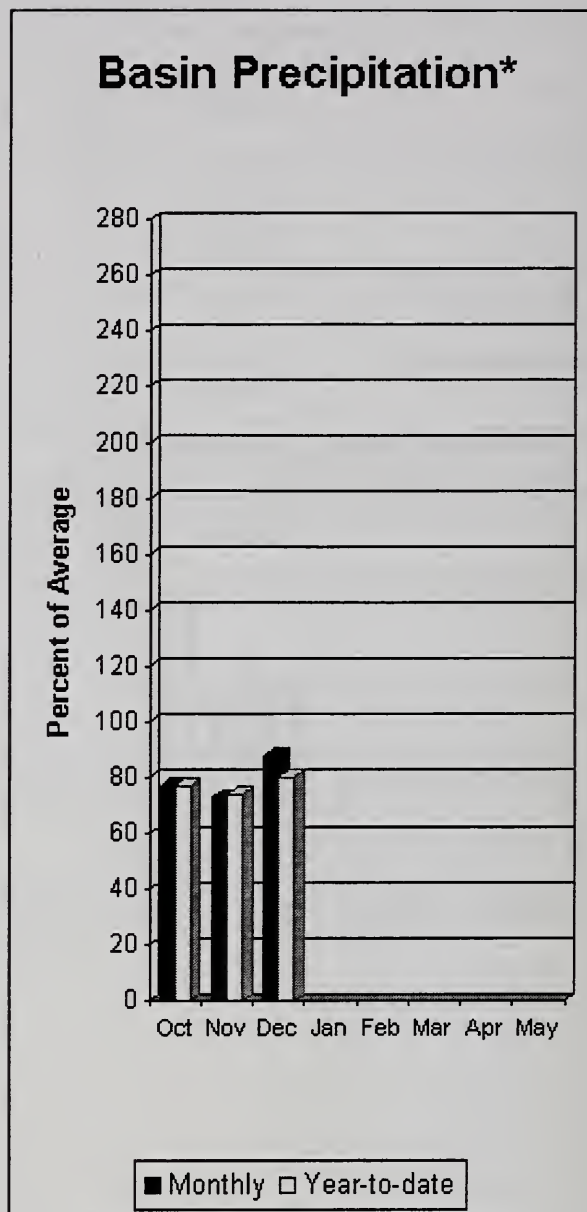
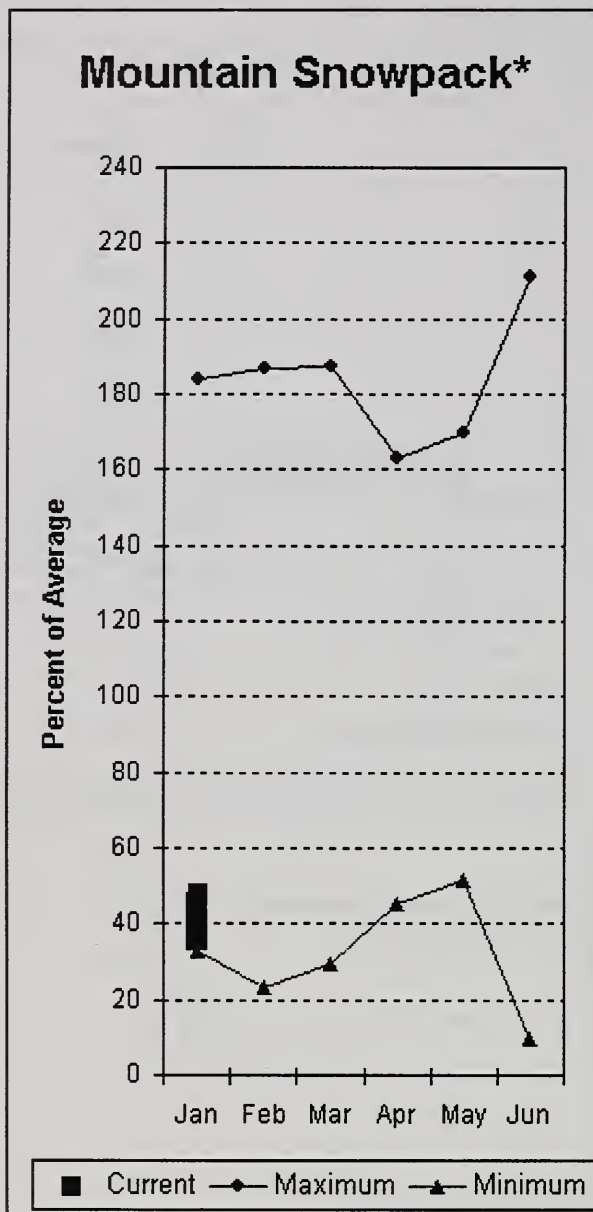
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					CEDAR RIVER	4	20	26
					TOLT RIVER	2	21	27
					SNOQUALMIE RIVER	4	22	25
					SKYKOMISH RIVER	3	30	31

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural volume - actual volume may be affected by upstream water management.

## North Puget Sound River Basins



\*Based on selected stations

Forecast for Skagit River streamflow at Newhalem is 78% of average for the spring and summer period. December streamflow in Skagit River was 142% of average. Other forecast points included Baker River at 77% and Thunder Creek at 81% of average. Basin-wide precipitation for December was 88% of average, bringing water-year-to-date to 80% of average. January 1 average snow cover in Skagit River Basin was 45%, and Nooksack River Basin was 51% at the Elbow Lake SNOTEL site. Baker River Basin snow surveys were not conducted this month. Rainy Pass SNOTEL, at 4,780 feet, had 9 inches of water content. Average January 1 water content is 19.9 inches at Rainy Pass. January 1 Skagit River reservoir storage was 107% of average and 88% of capacity. Average temperatures for December were 4 degrees above normal for the basin and 1-2 degrees above average for the water year.

*For more information contact your local Natural Resources Conservation Service office.*

# North Puget Sound River Basins

## Streamflow Forecasts - January 1, 2005

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions ===== Wetter =====>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
THUNDER CREEK near Newhalem	APR-JUL	157	175	190	81	205	225	234
	APR-SEP	230	255	270	81	285	310	333
SKAGIT at Newhalem (2)	APR-JUL	1230	1360	1450	78	1540	1670	1864
	APR-SEP	1450	1610	1720	78	1830	1990	2217
BAKER RIVER near Concrete	APR-JUL	475	575	640	77	705	805	828
	APR-SEP	625	735	810	77	890	1000	1050

### NORTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of December

### NORTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - January 1, 2005

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ROSS	1404.1	1229.4	---	1142.1	SKAGIT RIVER	4	41	45
DIABLO RESERVOIR	90.6	87.2	---	85.3	BAKER RIVER	0	0	0
					NOOKSACK RIVER	1	28	51

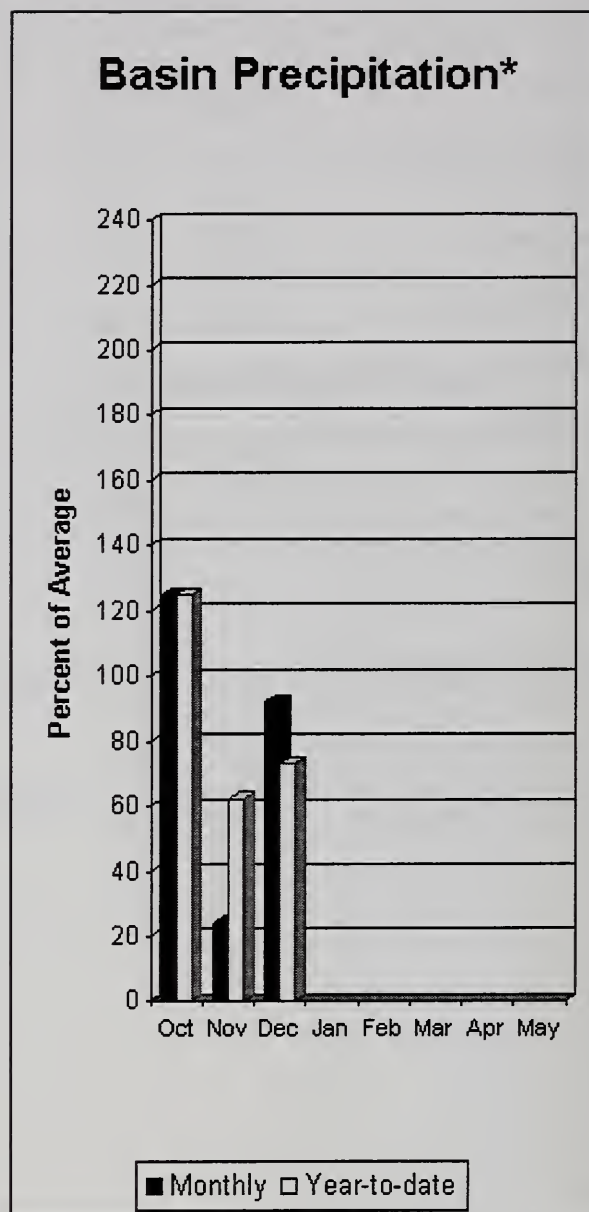
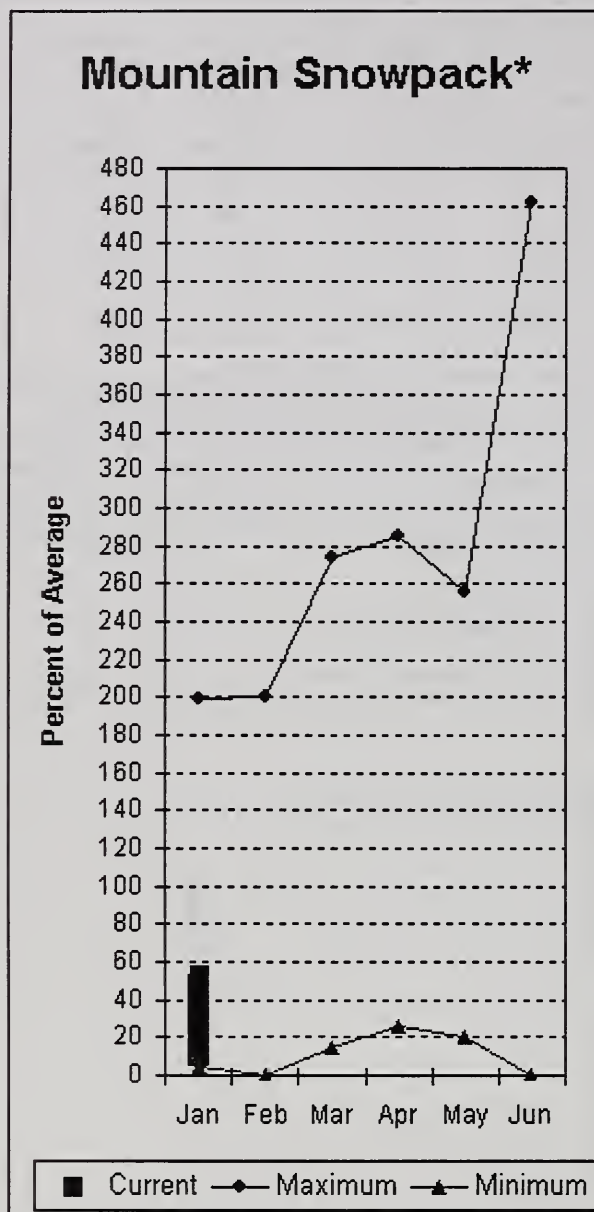
\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.



# Olympic Peninsula River Basins



\*Based on selected stations

Forecasted average runoff for streamflow in the Dungeness River and Elwha River basins is 83% and 84% respectively. Big Quilcene and Wynoochee rivers should expect slightly below average runoff this summer also. December precipitation was 92% of average. Precipitation has accumulated at 73% of average for the water year. December precipitation at Quillayute was 12.13 inches. The thirty-year average for December is 14.5 inches. Olympic Peninsula snowpack averaged 53% of normal on January 1. Temperatures were 3-4 degrees above average for December and 1-2 degrees above average for the water year.

*For more information contact your local Natural Resources Conservation Service office.*

# Olympic Peninsula River Basins

## Streamflow Forecasts - January 1, 2005

		<===== Drier ===== Future Conditions ===== Wetter =====>						
Forecast Point	Forecast Period	Chance Of Exceeding *						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
=====								
DUNGENESS near Sequim	APR-SEP	85	109	126	83	143	167	152
	APR-JUL	66	86	100	81	114	134	124
=====								
ELWHA near Port Angeles	APR-SEP	275	360	420	84	480	565	503
	APR-JUL	235	305	350	84	395	465	419

### OLYMPIC PENINSULA RIVER BASINS Reservoir Storage (1000 AF) - End of December

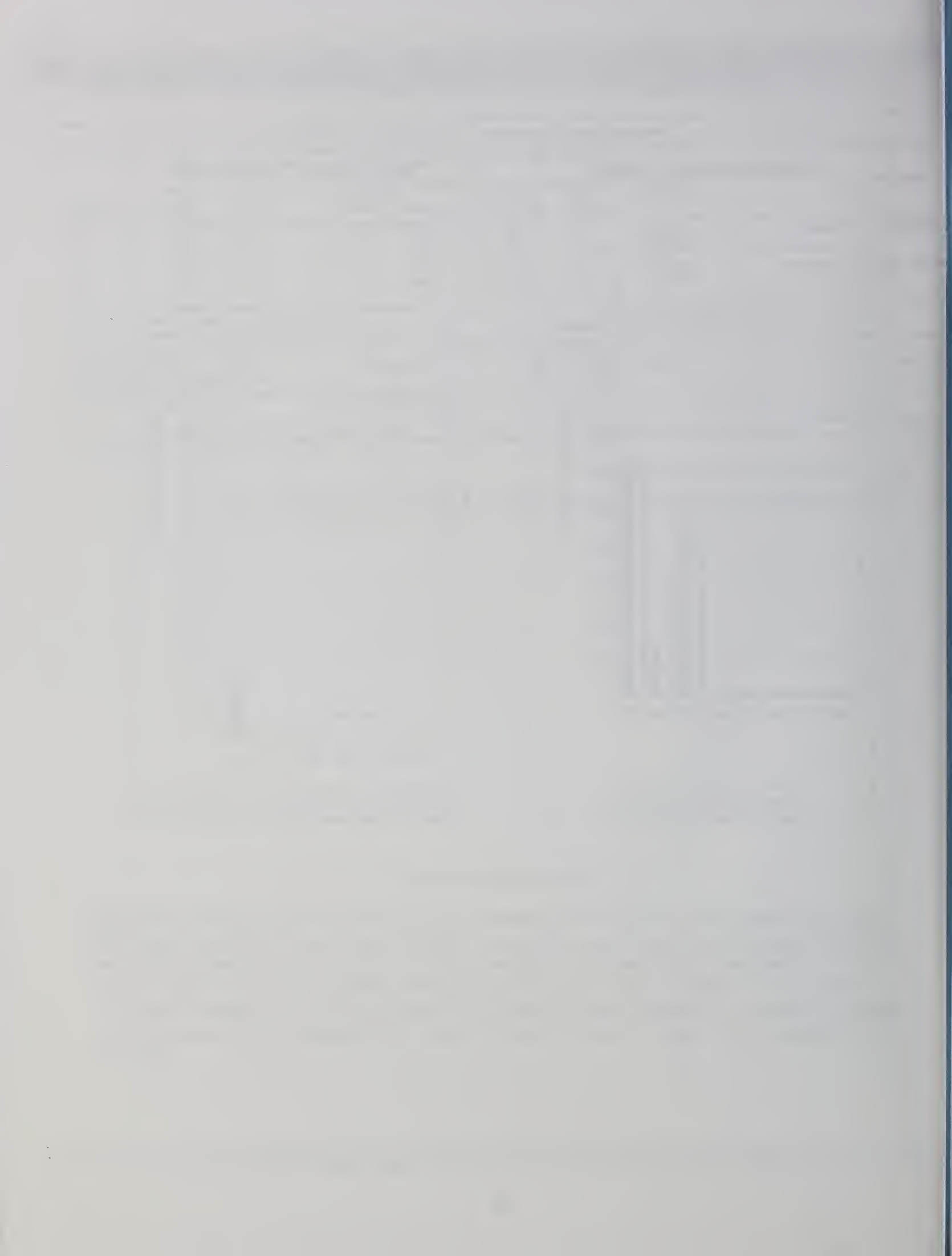
### OLYMPIC PENINSULA RIVER BASINS Watershed Snowpack Analysis - January 1, 2005

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					OLYMPIC PENINSULA	1	45	53

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.





*Issued by*

**Bruce Knight**  
**Chief**  
**Natural Resources Conservation Service**  
**U.S. Department of Agriculture**

*Released by*

**R.L. "Gus" Hughbanks**  
**State Conservationist**  
**Natural Resources Conservation Service**  
**Spokane, Washington**

---

## The Following Organizations Cooperate with the Natural Resources Conservation Service in Snow Survey Work\*:

<b>Canada</b>	Ministry of Sustainable Resources Snow Survey, River Forecast Centre, Victoria, British Columbia
<b>State</b>	Washington State Department of Ecology Washington State Department of Natural Resources
<b>Federal</b>	Department of the Army Corps of Engineers U.S. Department of Agriculture Forest Service U.S. Department of Commerce NOAA, National Weather Service U.S. Department of Interior Bonneville Power Administration Bureau of Reclamation Geological Survey National Park Service Bureau of Indian Affairs
<b>Local</b>	City of Tacoma City of Seattle Chelan County P.U.D. Pacific Power and Light Company Puget Sound Power and Light Company Washington Water Power Company Snohomish County P.U.D. Colville Confederated Tribes Spokane County Yakama Indian Nation Whatcom County Pierce County
<b>Private</b>	Okanogan Irrigation District Wenatchee Heights Irrigation District Newman Lake Homeowners Association Whitestone Reclamation District

\*Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.



Washington Snow Survey Office  
2021 E. College Way, Suite 214  
Mount Vernon, WA 98273-2873

FOR OFFICIAL USE ONLY

U. S. DEPT. OF AGRICULTURE  
NATIONAL AGRICUL. LIBRARY  
CURRENT SERIAL RECORDS  
ROOM 002  
BELTSVILLE, MD 20705-2351



# Washington Water Supply Outlook Report

Natural Resources Conservation Service  
Spokane, WA

